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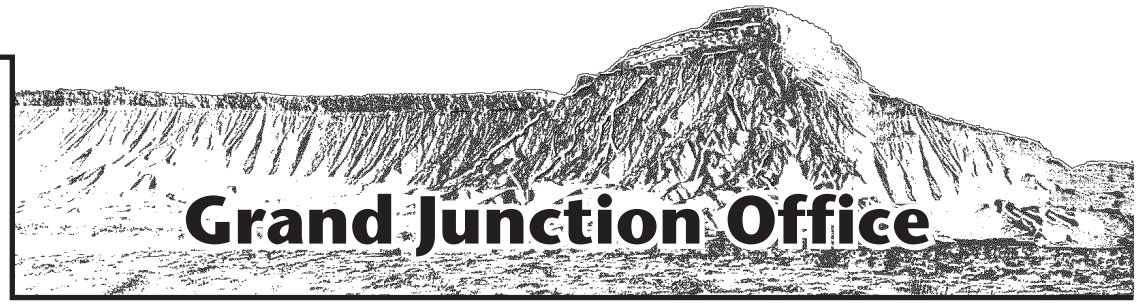
Pinellas Environmental Restoration Project

Quarterly Progress Report, 4.5 Acre Site April Through June 2003

July 2003



U.S. Department of Energy

Work Performed Under DOE Contract No. DE–AC13–02GJ79491 for the U.S. Department of Energy

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Pinellas Environmental Restoration Project
Quarterly Progress Report
4.5 Acre Site

April through June 2003

July 2003

Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

Work Performed Under DOE Contract Number DE−AC13−02GJ79491

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Appendix A. Laboratory Reports—April 2003 Quarterly Results

Acronyms and Abbreviations

bls	below land surface
COPC	contaminants of potential concern
DCE	dichloroethene
DOE	U.S. Department of Energy
DPE	dual-phase extraction
DPT	direct push technology
FDEP	Florida Department of Environmental Protection
ft	feet
IRA	Interim Remedial Action
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
MCL	maximum contaminant level
mg/L	milligrams per liter
mV	millivolts
NGVD	national geodetic vertical datum
NTU	Nephelometric Turbidity Units
RAP	Remedial Action Plan
RPD	relative percent difference
STAR Center	Young - Rainey Science, Technology, and Research Center
STL	Severn Trent Laboratories
TCE	trichloroethene
TCOPC	total contaminants of potential concern
VC	vinyl chloride
VOCs	volatile organic compounds
XDD	Xpert Design and Diagnostics, LLC

1.0 Introduction

The Pinellas Environmental Restoration Project Quarterly Progress Report for the 4.5 Acre Site describes environmental restoration activities for the Pinellas 4.5 Acre Site located in Pinellas County, Largo, Florida. The former U.S. Department of Energy (DOE) Pinellas Plant facility consisted of the 4.5 Acre Site and the Young - Rainey Science, Technology, and Research Center (STAR Center) (Figure 1). The facility was constructed in the mid-1950s as part of a nationwide nuclear weapons research, development, and production complex. Production of weapons-related components ceased in September 1994. However, as a result of these operations, contamination exists in the surficial ground water beneath the Site.

Ground water cleanup is proceeding according to provisions in the document *Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida* (Remediation Agreement) (FDEP 2001), an agreement between DOE and the Florida Department of Environmental Protection (FDEP); and in accordance with applicable portions of "Corrective Actions for Contamination Site Cases," an appendix to FDEP's *Enforcement Manual* (FDEP 1999).

Administration of DOE activities at the 4.5 Acre Site is the responsibility of the DOE Idaho Operations Office. Responsibility for environmental restoration activities at the 4.5 Acre Site was transferred from DOE's Pinellas Area Office to DOE's Grand Junction Office in October 1997. S.M. Stoller Corporation (Stoller), a prime contractor to DOE's Grand Junction Office, provides technical support to DOE for remediation and closure of all active solid-waste management units on site and for the 4.5 Acre Site.

The 4.5 Acre Site is located to the northwest of the STAR Center, northeast quarter of Section 13, Township 30 South, Range 15 East (Figure 2). This parcel was owned by DOE from 1957 to 1972, at which time it was sold to a private landowner. During the period of DOE ownership, the property was used for disposal of drums of waste resins and solvents. As a result of this practice, the surficial aquifer was impacted by volatile organic compounds (VOCs), primarily vinyl chloride (VC), toluene, trichloroethene (TCE), and 1,2-dichloroethene (DCE). DOE completed a source removal in 1985. An Interim Remedial Action (IRA) consisting of ground water extraction and treatment via air stripping, and a routine ground water monitoring program were initiated in May 1990. In July 1997, a modification of the IRA involving installation of dual-phase extraction (DPE) wells provided a more aggressive system to remove ground water contamination. In November 1999, the DPE/air-stripping system was replaced with an in-situ biosparge treatment system.

The *4.5 Acre Site Biosparge System Integration Plan* (DOE 2000a) was approved by FDEP on January 17, 2001. This plan states that performance monitoring would be undertaken on a quarterly basis. Therefore, in April 2001, performance monitoring of the remedial system through the use of direct push technology (DPT) was undertaken. With this report, nine quarters of data have been collected. Samples of ground water were collected from 37 locations to depths up to 30 feet (ft) and were analyzed for VOCs and iron. Section 2.3 provides results from analysis of samples that were collected as part of these activities.

The biosparge systems are shut off with no plans to restart them. Therefore, the data collected in April will be the last data set that monitors biosparging activities. Subsequent monitoring will be adapted to fit the new remediation scenario and performance monitoring will no longer occur.

Additional information related to the biosparge treatment systems is discussed in more detail in Section 3.0.

All activities associated with this site are conducted consistent with the FDEP "Corrective Actions for Contamination Site Cases" (FDEP 1999) and the *Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida, Between: State of Florida Department of Environmental Protection and U.S. Department of Energy* (FDEP 2001). Ground water cleanup at the 4.5 Acre Site is proceeding, in part, according to provisions in the document *Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida* (FDEP 2001), an agreement between DOE and FDEP. The Remediation Agreement requires preparation of a Remedial Action Plan (RAP) to evaluate and select the final remedial action alternative to clean up ground water beneath the site to levels that are protective of public health and the environment. The RAP was completed in July 2001, and was approved by FDEP in August 2001.

This document is the quarterly progress report for the 4.5 Acre Site for April through June 2003, as requested by FDEP. The results of monitoring activities and a summary of ongoing and projected work are provided in this report. This report also provides a more detailed evaluation of the site over the last year. Section 4.0, "Data Interpretation," discusses remediation progress and plume movement. Time versus concentration plots and plume maps are provided to assist in interpretation of the ground water data.

1.1 Site Update

One new DPT location (DP55) and one previously sampled non-routine DPT location (DP48) were added to the 4.5 Acre Site quarterly sampling in April to continue the plume control assessment activities along the western portion of the site. These two locations were sampled at two target depths, 18−22 ft and 26−30 ft below land surface (bls). The DPT locations were sampled for VOCs and for the standard field parameters including field-measured iron. This was a one-time sampling event for these two locations. Locations are shown on Figure 3 and the results are shown in Table 1.

Evaluation of DPT data from previous quarterly sampling events indicates that VC concentrations increased in on-site sentry wells from November 1999 (biosparge startup) through January 2003. No VC has been detected in any off-site well. Due to the proximity of the ground water contamination relative to the boundary of the 4.5 Acre Site, and the apparent inability of the biosparging system to convert the subsurface to an aerobic state, the biosparge system was turned off. DOE recommended to FDEP that biosparge operations be suspended pending several actions that would be taken to evaluate the system's effectiveness to facilitate aerobic biodegradation of the contaminants and the possibility that biosparge operations may be spreading the contaminant plume.

On May 12, 2003, FDEP agreed that biosparging operations should be suspended and on May 13, 2003, DOE shutdown the biosparge operations at the 4.5 Acre Site.

During this past quarter, the following two tasks were performed:

- Estimate of Plume Mobilization at the 4.5 Acre Site
- Biosparging Performance Review Report

The Estimate of Plume Mobilization at the 4.5 Acre Site provides an estimate of the movement of VC due to biosparging operations at the 4.5 Acre Site during the past 3 years. Results of this study indicate that contaminants have potentially moved about 2 to 2.5 times farther westward during biosparging operations for the past 3 years than would have occurred under background (non-biosparging) conditions.

The *Pinellas Environmental Restoration Project Young - Rainey STAR Center Biosparging Performance Review Report* is an independent review of biosparge operations prepared by Xpert Design and Diagnostics, LLC (XDD). Four tasks were performed as part of this evaluation:

1. Review of historical ground water and soil data, biosparge system design, construction, and a recent performance assessment,

2. Evaluation of the current status of the biosparging system,

3. Provide appropriate recommendations as to whether the biosparging system should continue to operate, and

4. Provide direction on how biosparging system operations should continue if warranted.

The recommendation of XDD is that biosparging operations should be discontinued based upon:

1. High chemical oxygen demand of the aquifer will not be met within a reasonable time frame thus preventing biosparging operations from changing the aquifer from anaerobic to aerobic conditions,

2. Trend analysis indicates that naturally occurring reductive dechlorination is the primary remedial process ongoing at the site,

3. VC concentrations are increasing at the site,

4. Observed air bubbling at significant distances away from the horizontal wells indicates that air channels have been created, leading to the possibility that contaminant vapors may have been transported to previously unimpacted ground water, and

5. The lateral extent of the contaminant plume has expanded since implementation of biosparging operations.

Accordingly, the remedial action path forward that DOE has proposed for FDEP consideration is to initiate two future remedial actions: a short-term (i.e., 18−24 months) interim ground water recovery action to stop further spread of the contaminant plume, and identification of a proposed long-term (i.e., final) revised remedy selection to replace biosparging.

The first action proposed to FDEP is to design, construct, and implement a temporary ground water recovery system to control further spread of the plume and contain it on site. This system would have several recovery wells optimally spaced in the western portion of the 4.5 Acre Site. Recovered ground water would be sent to a portable treatment system (low profile air stripper or equivalent, located at the 4.5 Acre Site, that would be of sufficient size to treat recovered ground water containing VOCs. Once treated, the ground water would be discharged to the STAR Center's Wastewater Neutralization Facility through the effluent line that currently exists

between the 4.5 Acre Site and the Wastewater Neutralization Facility. This portion of the remedial strategy will be an interim action lasting 18–24 months. Upon approval of this plan by FDEP, DOE proposes to submit to FDEP by September 1, 2003, an Interim Remedial Action Plan for this activity.

To address the second action (i.e., long-term final remedy selection and implementation), DOE proposes to submit an addendum to FDEP by June 1, 2004. This addendum will provide a recommended final remedy to replace biosparging.

1.2 Quarterly Site Activities

- Obtained water-level measurements from all monitoring wells on April 4, 2003.
- Conducted the annual sampling event (i.e., collected ground water samples from 32 monitoring wells and 64 ground water samples from 37 DPT sample locations) in April 2003 for analysis of VOCs. Thirty-one of the 32 monitoring wells were also sampled for arsenic and lead.
- Collected four samples from two additional DPT locations that were placed to gather information for plume delineation.
- Collected field parameter and iron data from all DPT locations to evaluate geochemical conditions during active biosparging.
- Reported the results of quarterly sampling events (this document).
- Performed preventive maintenance on the biosparge systems throughout the quarter.
- Prepared a discussion of remediation progress and plume movement. Time versus concentration plots and plume maps are provided to assist in interpretation of the ground water data (this document).

2.0 Monitoring Data

2.1 Ground Water Elevations and Flow

Within a 2-hour period on April 4, depth-to-water measurements were taken in all monitoring wells at the 4.5 Acre Site as part of the sitewide quarterly sampling event. The depth to water in each well was measured with an electronic water-level indicator. The April ground water elevation data for the 4.5 Acre Site are listed in Table 2. The data and information from deep wells were used to construct contours of water levels in the deep surficial aquifer in Figure 4.

The water levels were measured 3 days following shutdown of the biosparging system on April 1, 2003. The interpretative contours on Figure 4 show ground water flow generally to the west. These flow patterns are consistent with those previously observed at the site (i.e., flow to the west-northwest) when the aquifer is under static, non-pumping conditions. The slight ground

water low that had been observed the previous six quarters in the east-central part of the site (around monitoring well PIN20–M049) was not apparent in April.

The water table ranged from about 2 to 5 ft bls, with ground water elevations that ranged from a high of 16.05 ft at PIN20–TE01 to a low of 14.20 ft at PIN20−M38D. The hydraulic gradient across the site was approximately 0.003 feet per foot. This gradient is similar to that observed in the northern part of the site in January 2003. Using Darcy's Law, along with approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity, ground water at the site is estimated to move about 3 ft/year, which is slightly less than previously observed velocities of 6 to 10 ft/year.

2.2 Ground Water Sampling

Thirty-two monitoring wells and 37 DPT locations were sampled by Stoller personnel in March and April of 2003. Two of the DPT locations were one-time locations sampled to aid in plume delineation. The DPT locations were sampled at approximately 26 to 30 ft bls and a selected subset of 27 DPT locations were also sampled at approximately 18 to 22 ft bls (total of 64 DPT ground water samples). All DPT locations were filled with bentonite chips after sampling.

All samples were collected in accordance with the Stoller *Sampling Procedures for the Young - Rainey STAR Center* (DOE 2002) using FDEP procedures. With the exception of two samples, all samples collected were submitted to Severn Trent Laboratories (STL) for analysis of VOCs using U.S. Environmental Protection Agency Method 8021. Samples from PIN20−M007 and −M40S were only analyzed by STL for arsenic and lead. STL is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference, certification number E84282.

The monitoring wells were micropurged with dedicated bladder pumps and the samples were collected when the field measurements stabilized. DPT locations were purged using a peristaltic pump and sampled when the field measurements stabilized. Table 3 lists measurements of pH, specific conductance, dissolved oxygen, oxidation/reduction potential, turbidity, and temperature recorded at the time each sample was collected. These measurements were collected using a flow cell and multiparameter meter. Values for total iron and ferrous iron were measured at the DPT locations using a colorimeter and are discussed in Section 2.4.

2.3 Ground Water Analytical Results

Individual contaminants of potential concern (COPC) and total COPCs (TCOPCs) concentrations in samples collected from wells and direct-push locations at the 4.5 Acre Site are included in Table 4. The previous four quarters of results are included in Table 4 for comparison. Figure 3 shows the TCOPCs concentrations.

No COPCs were detected in samples from the 43 sample locations listed below (results listed in Table 1 and Table 4).

PIN05–0500	PIN20–DP17 18 ft	PIN20–DP34 18 ft	PIN20–M025
PIN20–0503	PIN20–DP23 25 ft	PIN20–DP34 22 ft	PIN20–M028
PIN20–DP01 18 ft	PIN20–DP24 18 ft	PIN20–DP35 18 ft	PIN20–M035
PIN20–DP03 18 ft	PIN20–DP27 23 ft	PIN20–M003	PIN20–M036
PIN20–DP03 23 ft	PIN20–DP28 24 ft	PIN20–M005	PIN20–M054
PIN20–DP04 23 ft	PIN20–DP29 18 ft	PIN20–M007	PIN20–M38D
PIN20–DP09 26 ft	PIN20–DP29 24 ft	PIN20–M011	PIN20–M40D
PIN20–DP10 24 ft	PIN20–DP30 18 ft	PIN20–M012	PIN20–M40S
PIN20–DP13 18 ft	PIN20–DP30 23 ft	PIN20–M019	PIN20–M41D
PIN20–DP13 26 ft	PIN20–DP32 18 ft	PIN20–M023	PIN20–MWL6
PIN20–DP16 23 ft	PIN20–DP33 18 ft	PIN20–M024	

Samples from 53 sample locations listed below contained COPCs at detectable levels (results listed in Table 1 and Table 4).

PIN20–0502	PIN20–DP12 25 ft	PIN20–DP24 23 ft	PIN20–M001
PIN20–DP01 22 ft	PIN20–DP14 18 ft	PIN20–DP25 18 ft	PIN20–M015
PIN20–DP02 18 ft	PIN20–DP14 23 ft	PIN20–DP25 24 ft	PIN20–M049
PIN20–DP02 26 ft	PIN20–DP15 18 ft	PIN20–DP26 24 ft	PIN20–M053
PIN20–DP05 23 ft	PIN20–DP15 22 ft	PIN20–DP28 18 ft	PIN20–M18D
PIN20–DP06 18 ft	PIN20–DP17 23 ft	PIN20–DP31 18 ft	PIN20–M22D
PIN20–DP06 23 ft	PIN20–DP18 18 ft	PIN20–DP31 22 ft	PIN20–MWL1
PIN20–DP07 18 ft	PIN20–DP18 23 ft	PIN20–DP32 22 ft	PIN20–MWL2
PIN20–DP07 24 ft	PIN20–DP19 24 ft	PIN20–DP33 22 ft	PIN20–MWL3
PIN20–DP08 18 ft	PIN20–DP20 18 ft	PIN20–DP35 22 ft	PIN20–MWL4
PIN20–DP08 24 ft	PIN20–DP20 23 ft	PIN20–DP48 18 ft	PIN20–MWL5
PIN20–DP11 18 ft	PIN20–DP21 18 ft	PIN20–DP48 23 ft	
PIN20–DP11 26 ft	PIN20–DP21 23 ft	PIN20–DP55 18 ft	
PIN20–DP12 18 ft	PIN20–DP22 23 ft	PIN20–DP55 24 ft	

The maximum TCOPCs value detected was 76,000 micrograms per liter (µg/L) at PIN20−DP12 25 ft. The compound detected at the highest concentration in PIN20–DP12 25 ft was cis-1,2-DCE at a concentration of 46,000 µg/L. Reported "J" values are not considered in the TCOPC analyte concentrations.

The monitoring wells were also sampled for arsenic and lead (Table 5) as specified in the historical review of COPCs (DOE 2003). Arsenic was detected in six of the 31 wells; lead was detected in seven wells. The maximum arsenic and lead concentrations were detected in PIN20−MWL6 at 0.029 milligrams per liter (mg/L) and 0.038 mg/L, respectively.

Laboratory reports for quarterly samples collected in April 2003 are provided in Appendix A.

2.4 Geochemical Parameters

As part of the regular annual monitoring, samples for field analysis of dissolved total and ferrous iron were collected during the DPT sampling. Collection of these data is intended to monitor conversion from reducing to oxidizing conditions during biosparging. As the biosparging system continues operation, the reduced iron should be converted to oxidized iron. The measured iron

values and the calculated percent of oxidized iron are shown with the rest of the field measurements in Table 1 and Table 3.

2.5 Quality Assurance/Quality Control

Six duplicate samples were compared and the relative percent differences (RPDs) between the results were calculated. Results of analysis for each duplicate sample are listed in Table 6. From the six duplicate samples, 226 individual compounds were analyzed. The duplicate for PIN2−DP02 26 ft failed to meet the guideline that the RPD should be less than 30 percent when the concentration is more than five times the detection limit. The analytes which failed were cis-1,2-DCE and VC. The error may have been due to a difference in the dilution factor since the sample was diluted at 1:5 and the duplicate was diluted at 1:250 and high concentrations of the analytes were present in the sample. The failure rate was less than one percent. All data are considered Class A level, indicating that the data may be appropriately used for quantitative and qualitative purposes.

According to the Stoller Sampling Plan, duplicate samples should be collected at a frequency of one duplicate for every 20 or less samples. There were 32 ground water VOCs, 31 arsenic and lead samples collected from standard monitoring wells, and two duplicate samples. For the DPT locations, there were 64 VOCs samples collected and four duplicate samples, therefore, the duplicate criteria were met.

Six trip blanks and four equipment blanks were submitted for analysis. Four blanks showed an estimated value for methylene chloride. The maximum estimated methylene chloride value seen in the blanks was 0.77 µg/L.

3.0 Biosparge System Operation

3.1 Biosparge System Performance

The biosparge systems at the 4.5 Acre Site were continuously operational through May 13, 2003, at which time the systems were shut off per DOE direction. Currently, there are no plans to restart biosparge operations.

3.2 Biosparge System Sampling and Monitoring

As described in the previous quarterly report, the Interim Remedial Action Plan Addendum for the 4.5 Acre Site outlined sampling and monitoring activities to monitor biosparging activities. The *4.5 Acre Site Biosparge Monitoring Report* (DOE 2000b), presents the data collection activities associated with the biosparging system start-up, analyzes the monitoring results, and makes recommendations for continued operations. This report was issued in July 2000. Subsequently, biosparging activities will be monitored on a quarterly basis during regular quarterly sampling events.

As discussed in Sections 1.0 and 3.1, the biosparge systems are shut off, with no plans to restart them. Therefore, the data collected in April will be the last data set that monitors biosparging activities. Subsequent monitoring will be adapted to fit the new remediation scenario.

4.0 Data Interpretation

This data interpretation section is added to the April to June quarterly report each year to aid in evaluating remediation progress. This section consists of plots showing contaminant concentrations trends (Section 4.1), plume maps (Section 4.2), and a discussion of site geochemistry (Section 4.3).

4.1 Contaminant Concentration Trends

The entire data set was evaluated and selected wells and COPCs were chosen for presentation as time versus concentration plots to evaluate remediation progress and potential plume movement.

DP32 (deep interval; 26 to 30 ft bls) was chosen due to its increasing contaminant concentration trends and its location near the leading edge of the plume. As can be seen in Figure 5, VC and cis-1,2-DCE concentrations have been increasing each quarter, with the exception of October 2002 when concentrations decreased. This decrease is likely due to the spatial variability associated with the DPT sampling procedure. The increasing DCE and VC concentration trends probably indicate plume movement. Increasing concentrations of DCE and VC could be due to degradation of the TCE parent compound. However, as can be seen in the figure, TCE has never been measured above the reporting limit at this location, so it is unlikely that TCE degradation is producing the measured DCE and VC concentrations.

DP07 (shallow interval; 18 to 22 ft bls) was chosen to show remediation progress. This location is in the central plume area between horizontal wells HW2 and HW3. TCE, cis-1,2-DCE, and VC trends are shown in Figure 6. At DP07, TCE, DCE, and VC concentrations increased initially, probably due to the disturbance caused by biosparging, which may have resulted in mobilization of contaminant from the sorbed phase into the dissolved phase. Subsequently, concentrations of these three contaminants have decreased, with TCE decreasing nearly to its maximum contaminant level (MCL) by April 2003.

In 2002, it was believed that these decreasing concentration trends were due to the effect of biosparging. However, after biosparging system performance evaluations were conducted by DOE and by an independent biosparging expert, it was determined that biosparging probably is not effective at reducing contaminant concentrations. These studies indicated that the decreases in contaminant concentrations probably are due to reductive dechlorination that occurs naturally at the site. It is likely that future site remediation will consist of enhancing this natural process to ensure that the dechlorination process goes to completion (i.e., TCE, DCE, and VC are completely dechlorinated to ethene, an innocuous compound).

4.2 Plume Maps

Plume maps were generated for TCOPCs (Figure 3) and the individual site COPCs: VC (Figure 7), cis-1,2-DCE (Figure 8), trans-1,2-DCE (Figure 9), TCE (Figure 10), and benzene (Figure 11). The inferred TCOPCs plume boundary (i.e., the dashed contour lines) includes all detected concentrations of all COPCs. The inferred plume boundaries for the individual compounds are the respective MCLs of the compounds. Concentrations that are below the MCL are not included in the individual compound plumes. The plume maps also show the plume boundary from last year to show any changes over the last year. An exception to this is the COPCs map; due to the change from showing total VOCs (sum of all detected analytes) last year to showing TCOPCs this year (sum of only the COPCs), a comparison cannot be made.

The TCOPCs plume consists of two parts: an eastern plume and a western plume (Figure 3). The western plume has a small area added at its northern edge (shown in green on the figure). This small addition to the plume is a result of DPT samples that were collected only once during the last year (and were not sampled in April). Very low levels of VC were detected in this area, so this area was added to both the TCOPCs and VC plumes.

The VC plume is relatively large, and is larger than in April 2002, particularly the western portion of the plume (Figure 7). Most of this increase in size is due to the detection of VC at locations that were not previously sampled, such as DP48. However, VC has appeared above the 1 µg/L MCL at a few locations, such as M053 and M015, where it was not detected last year, indicating potential plume movement. VC is the most mobile of the COPCs at this site and, therefore, should form the leading edge of the plume.

The cis-1,2-DCE plume (Figure 8) is slightly larger than last year due to the detection of this COPC above the 70 µg/L MCL in well M001. The trans-1,2-DCE plume (Figure 9) is very small due to trans-1,2-DCE being detected above the 100 µg/L MCL at only one location. The TCE plume (Figure 10) is similar in size to last year's plume, although concentrations generally appear to be decreasing, as discussed in Section 4.1. The benzene plume is also relatively small (Figure 11).

4.3 Geochemical Parameters

Geochemical parameters measured in all wells/DP locations at the 4.5 Acre Site during April 2003 are listed in Tables 1 and 3. In general, dissolved oxygen values are low (<1 mg/L) and oxygen reduction potential values are negative, indicating anaerobic, reducing conditions. This is indicative of the lack of effectiveness of the biosparging system at converting subsurface conditions from anaerobic to aerobic, as discussed previously.

Samples for field analysis of dissolved iron species have been collected from all the DPT locations since April 2001. The data collected in April 2003 are shown in Tables 1 and 3. These data indicate that most of the dissolved iron remains in the reduced form, another indicator that the biosparging system is not effective at converting subsurface conditions from anaerobic to aerobic.

5.0 Tasks to be Performed Next Quarter

The following tasks are scheduled during the next quarter (July through September 2003).

- Sampling and analysis of ground water and water level measurements in early July.
- DPT and quarterly sampling of ground water.
- Prepare Interim Remedial Action Plan for short-term ground water recovery action.

6.0 References

Florida Department of Environmental Protection (FDEP), 1999. "Corrective Actions for Contamination Site Cases," Appendix to FDEP *Enforcement Manual*, May.

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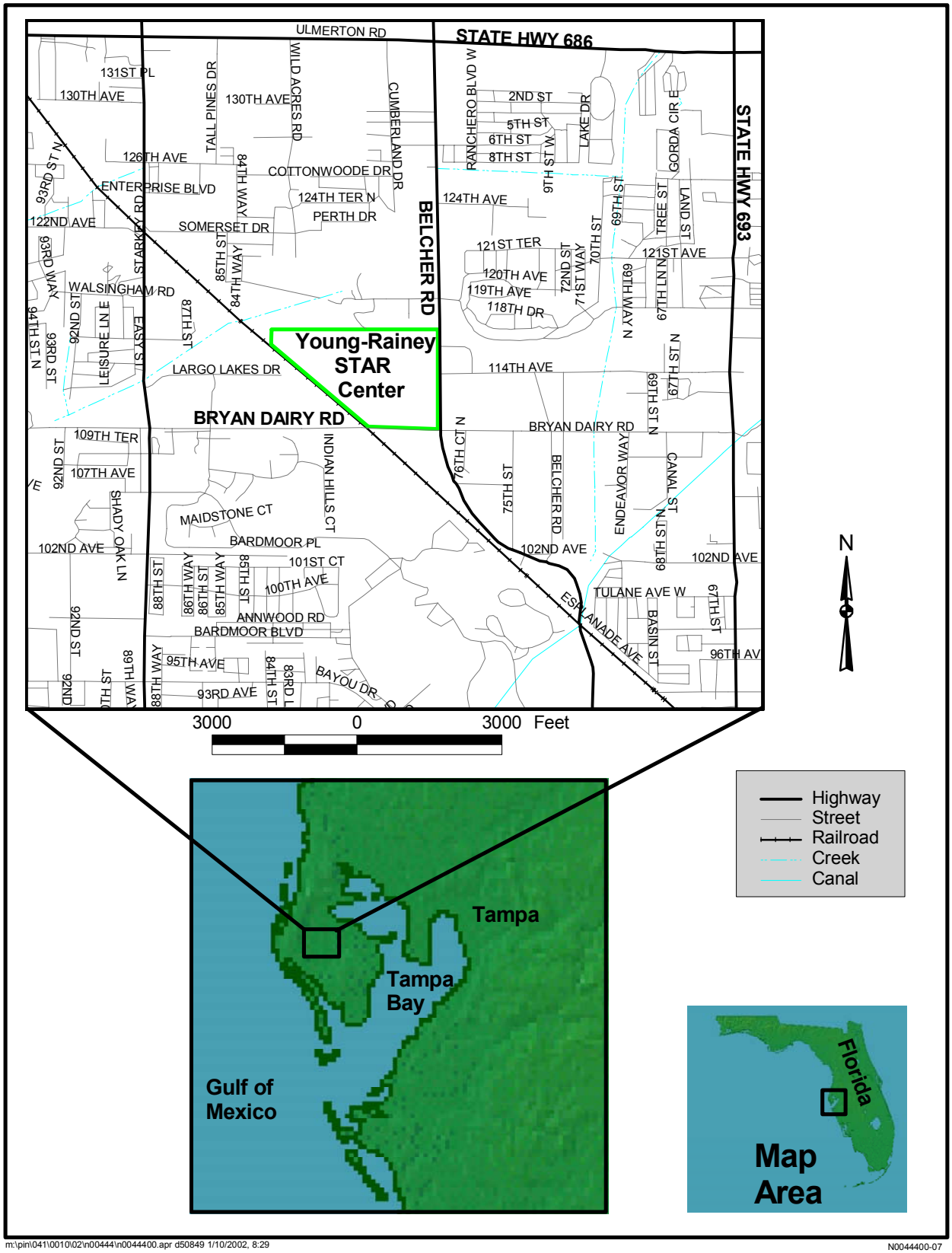

Figure 1. Young - Rainey STAR Center Location

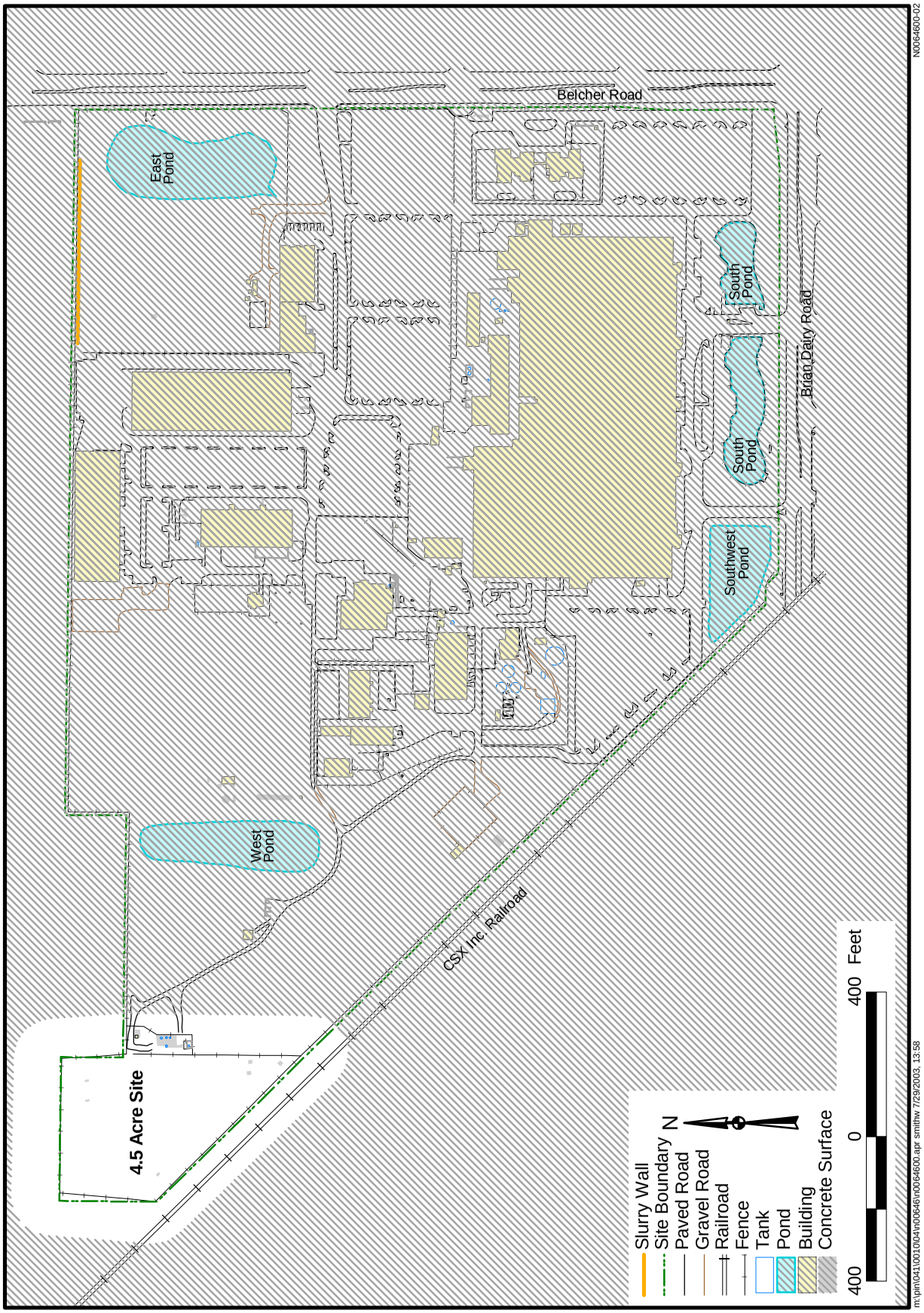

Figure 2. 4.5 Acre Site Location

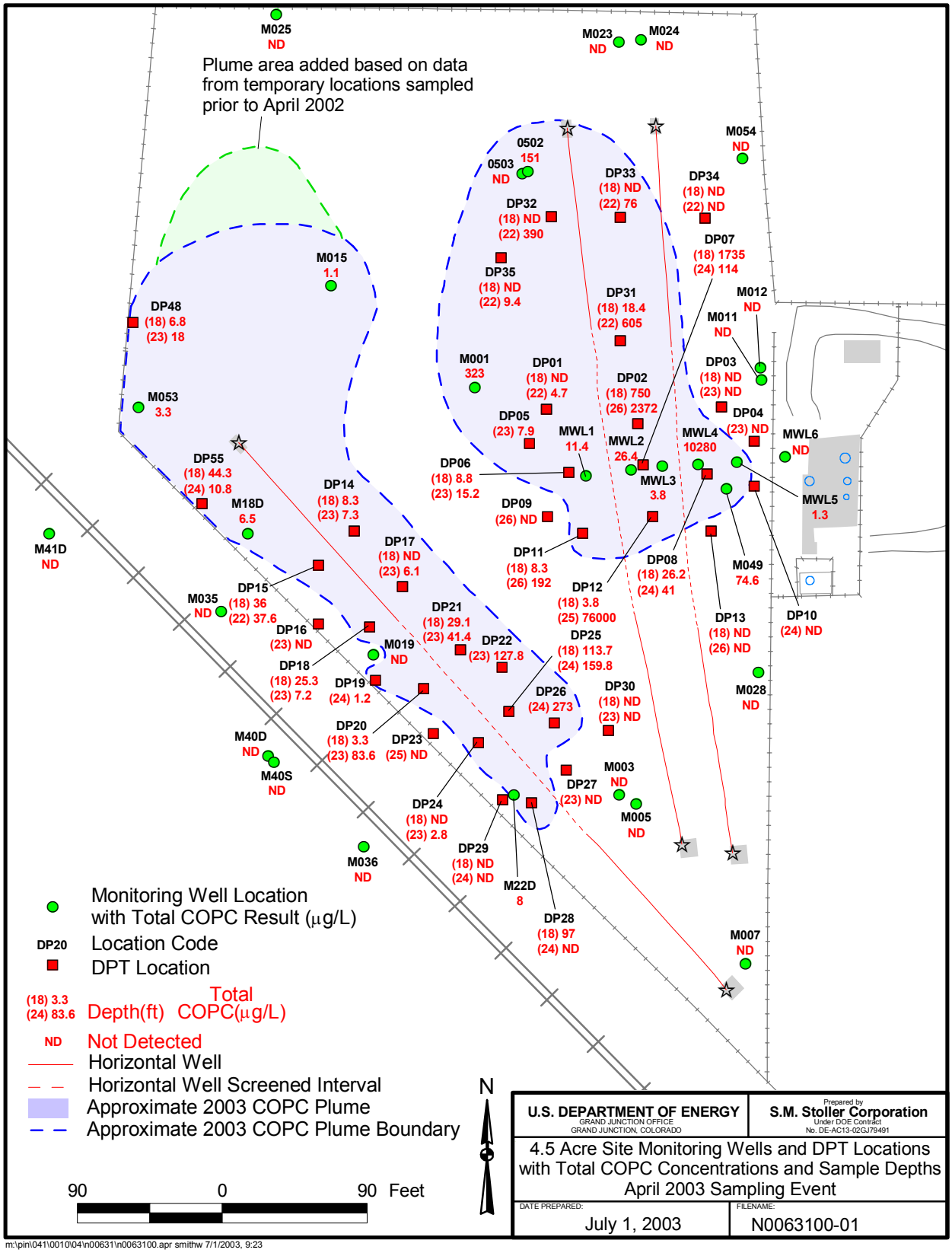

Figure 3. Monitoring Well Locations and DPT Locations with TCOPC Concentrations and Sample Depths

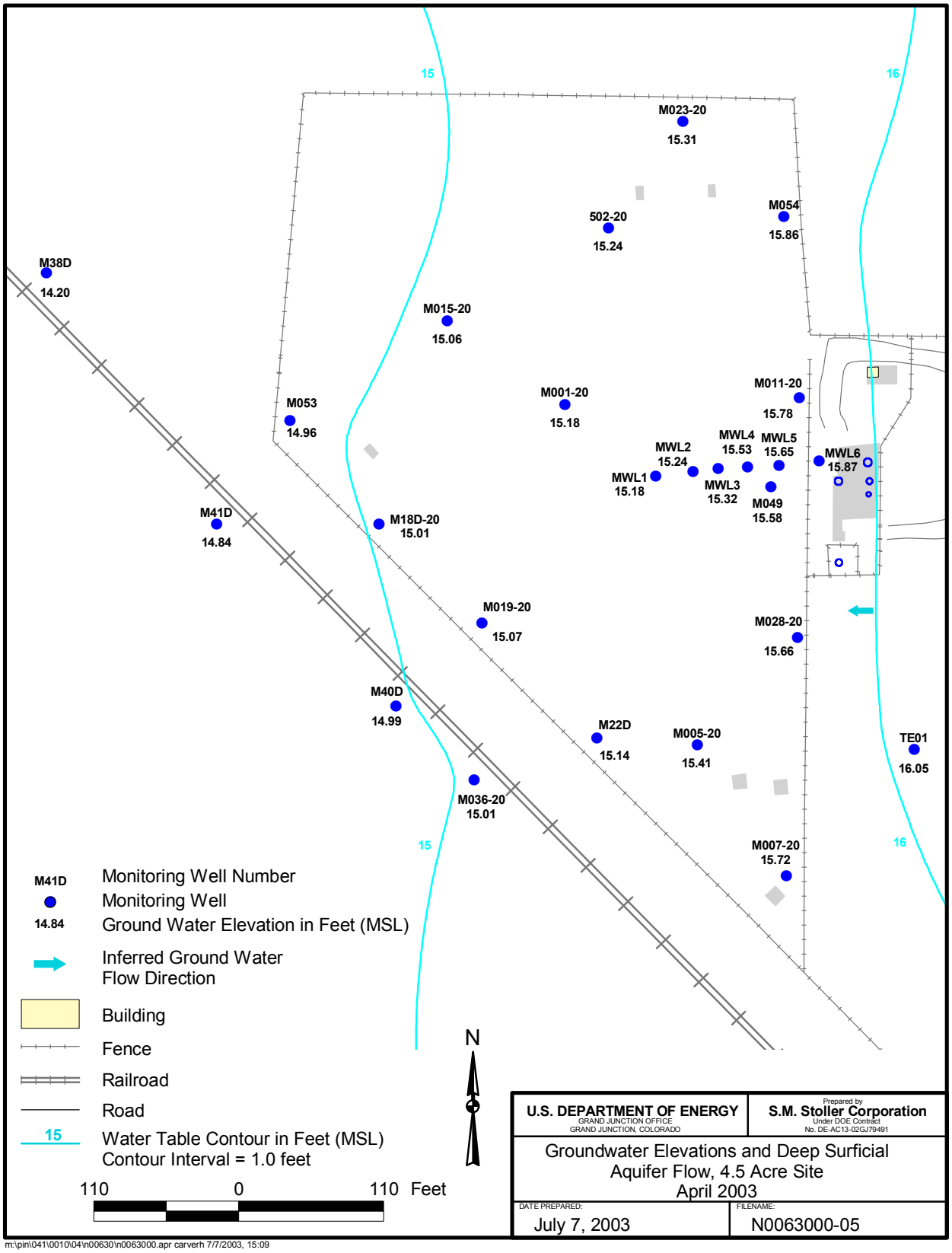

Figure 4. Ground Water Elevations and Deep Surficial Aquifer Flow, 4.5 Acre Site, April 2003

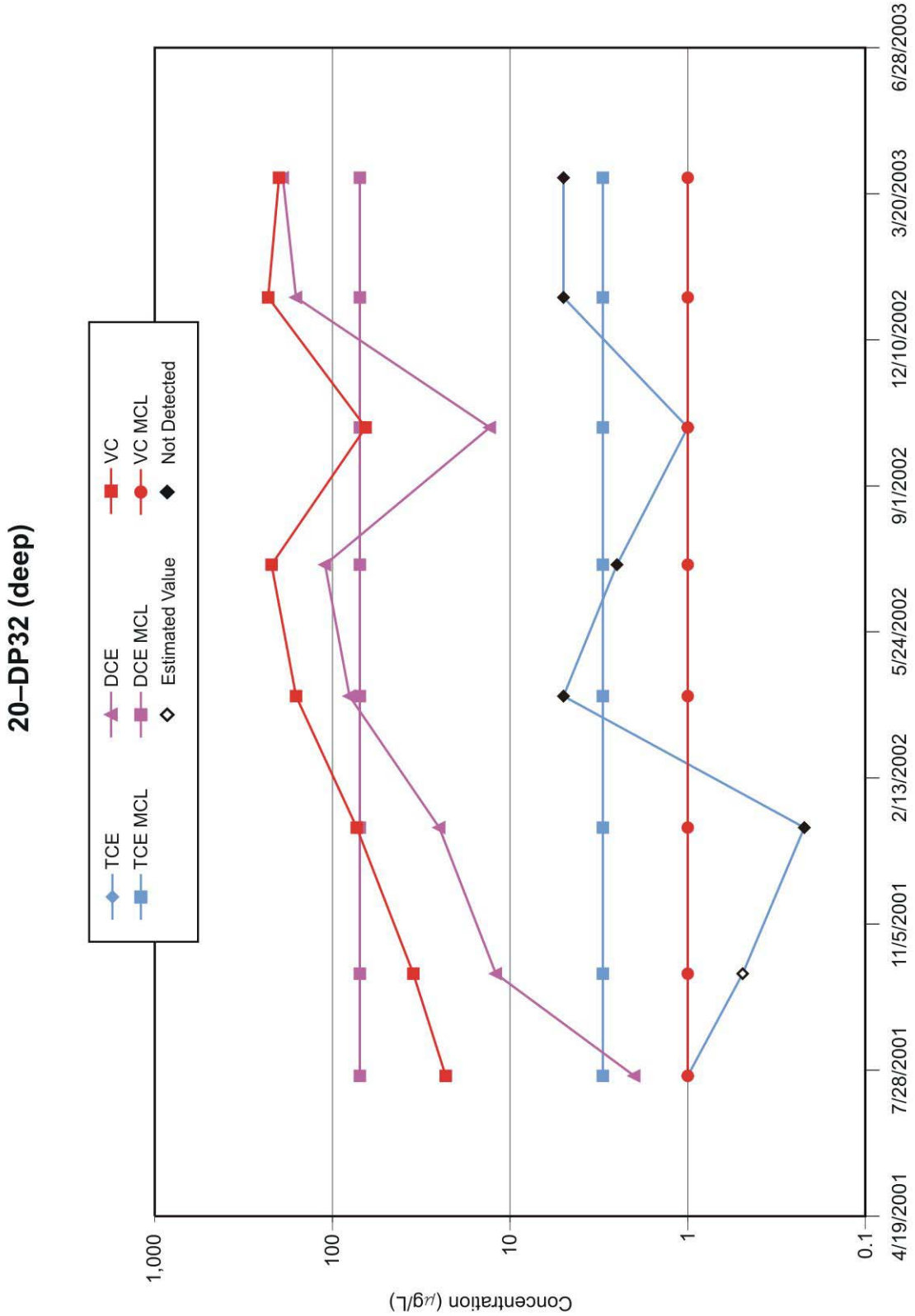

Figure 5. TCE, DCE, and Vinyl Chloride Trends in 20–DP32 (Deep)

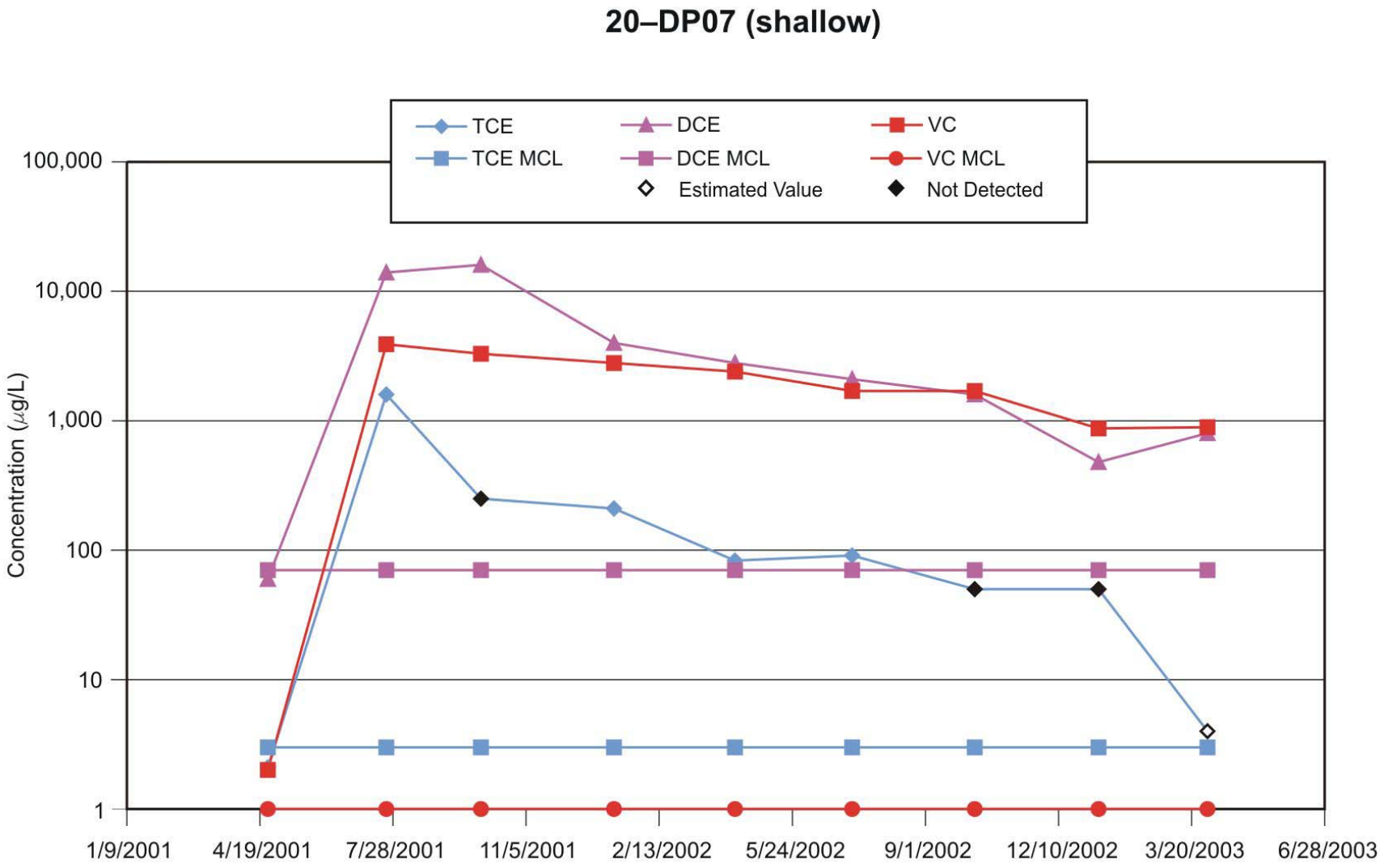

Figure 6. TCE, DCE, and Vinyl Chloride Trends in 20–DP07 (Shallow)

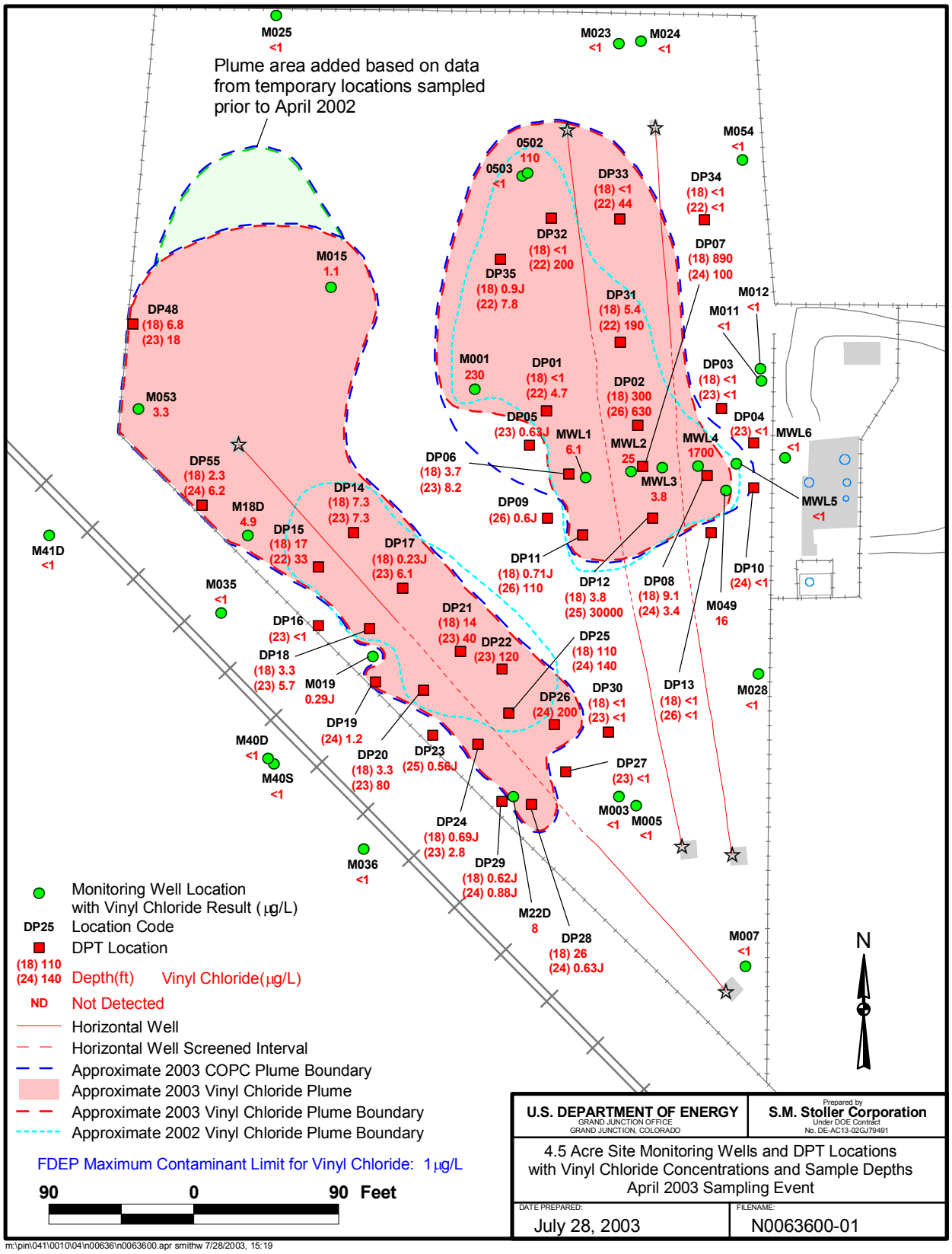

Figure 7. Monitoring Well Locations and DPT Locations with Vinyl Chloride Concentrations and Sample Depths

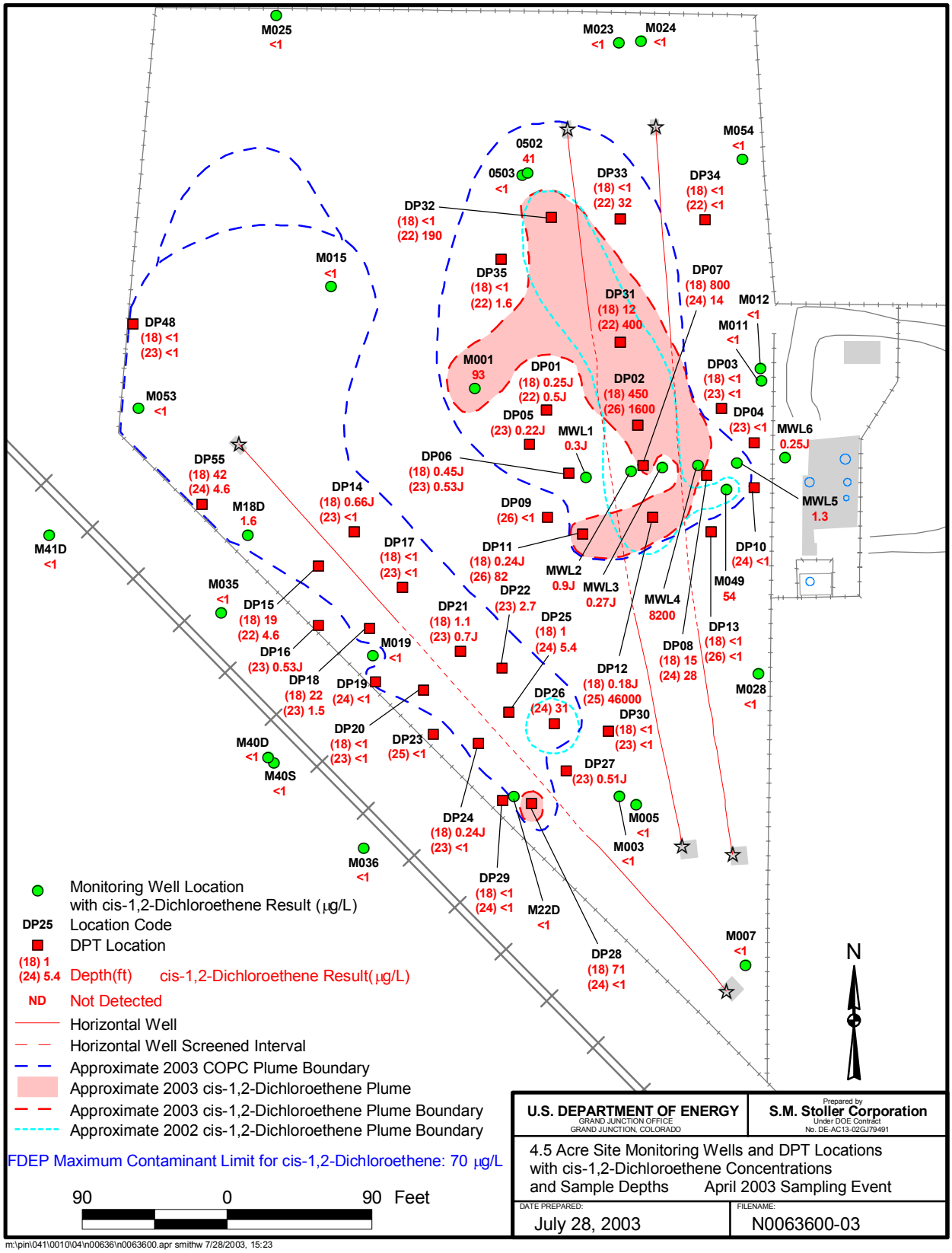

Figure 8. Monitoring Well Locations and DPT Locations with cis-1,2-DCE Concentrations and Sample Depths

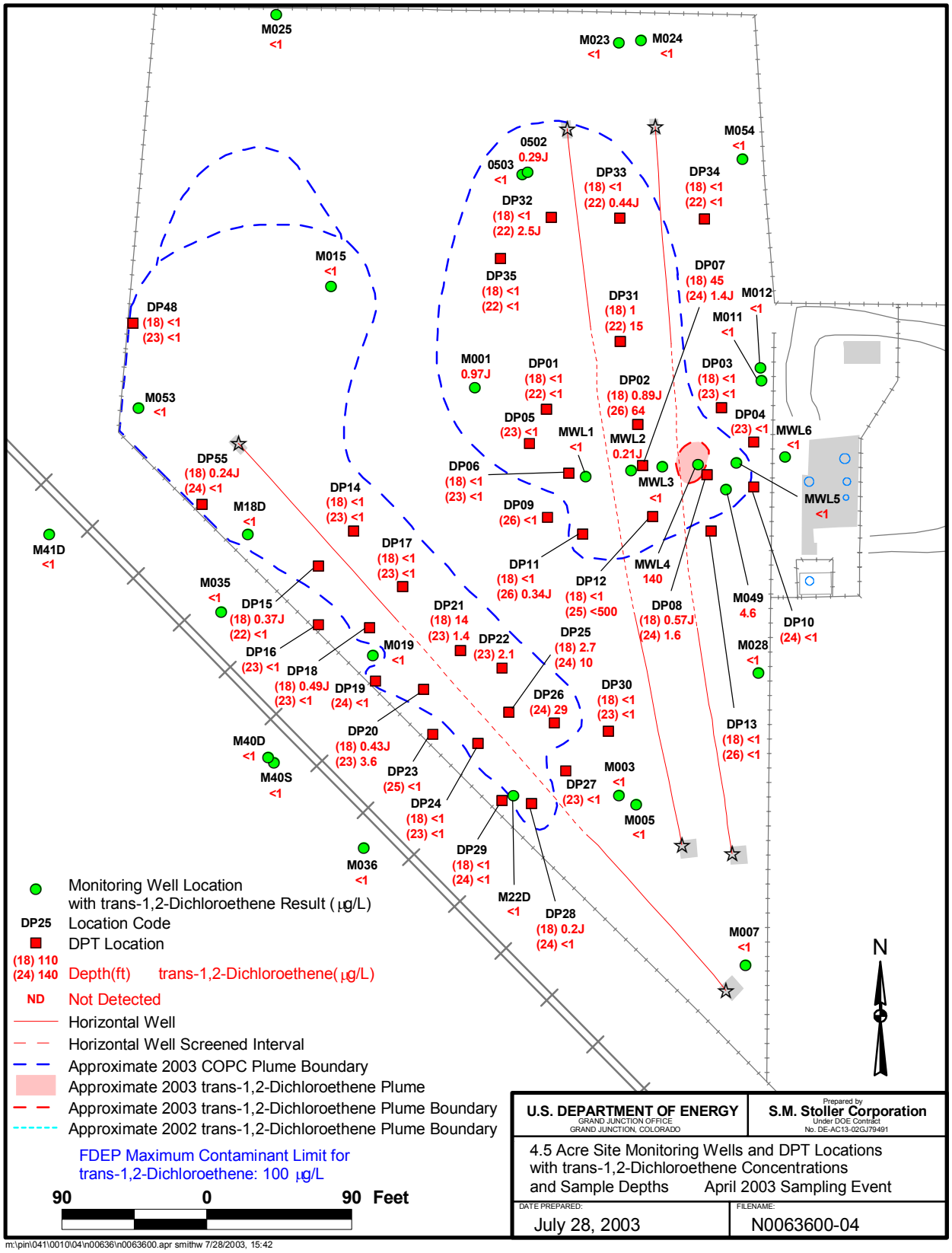

Figure 9. Monitoring Well Locations and DPT Locations with trans-1,2-Dichloroethene Concentrations and Sample Depths

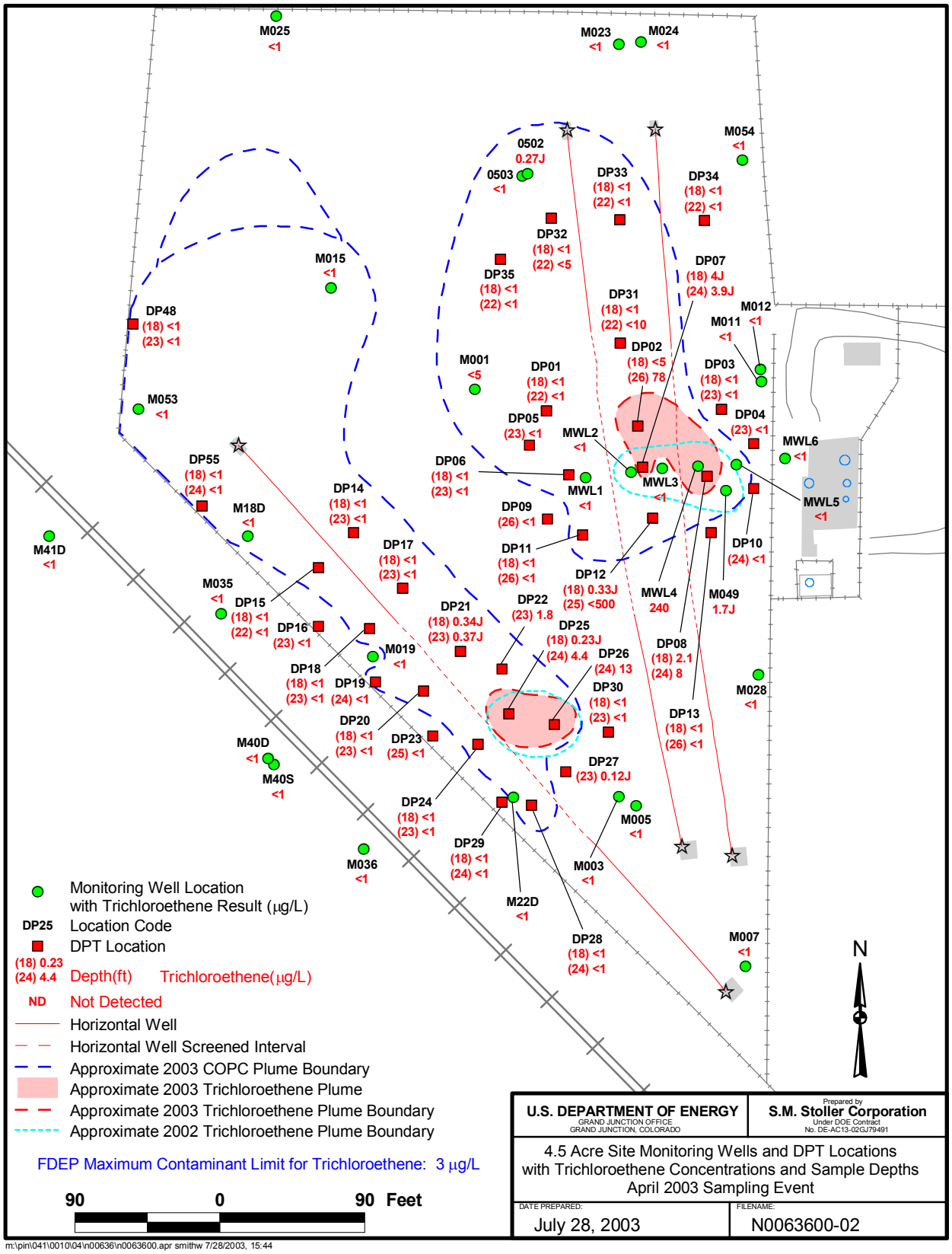

Figure 10. Monitoring Well Locations and DPT Locations with TCE Concentrations and Sample Depths

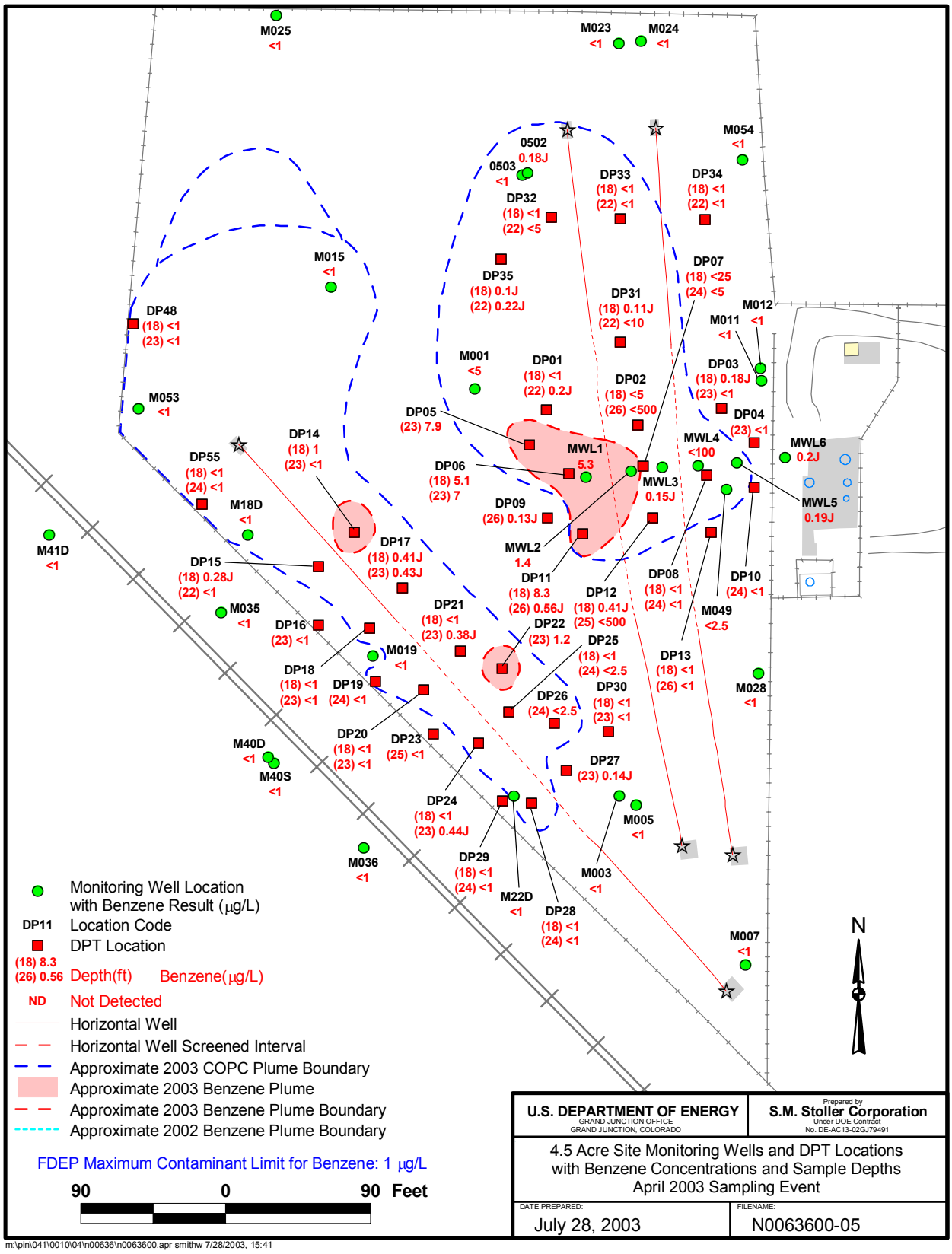

Figure 11. Monitoring Well Locations and DPT Locations with Benzene Concentrations and Sample Depths

Table 1. Field Measurements and COPCs Concentrations from Additional DPT Locations at the 4.5 Acre Site

Location	Screen Depth (ft bls)	Date Sampled	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Field Ferrous Iron (mg/L)	Field Total Iron (mg/L)	Oxidized Iron as Percent of Total Iron	TCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Total 1,2-DCE[b] (µg/L)	Vinyl chloride (µg/L)	Benzene (µg/L)	TCOPC[c] (µg/L)
PIN20			4.5 Acre Site															
DP48	18−22	4/4/2003	23.5	933	493	6.93	-101.2	0.23	0.48	0.59	19	<1	<1	<1	ND	6.8	<1	6.8
DP48	23−27	4/4/2003	24.2	733	>1,000	6.93	-106.8	0.17	0.47	0.42	0[d]	<1	<1	<1	ND	18	<1	18
DP55	18−22	4/4/2003	22.7	955	428	6.95	-114.5	0.23	0.64	0.75	15	<1	42	0.24J	42	2.3	<1	44.3
DP55	24−28	4/4/2003	23.5	877	>1,000	6.95	-110.1	0.21	0.55	0.65	15	<1	4.6	<1	4.6	6.2	<1	10.8

[a]Temperature corrected to 25°C
[b]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE
[c]TCOPC is the sum of the individual COPC concentrations. The cis-1,2-DCE and trans-1,2-DCE values are not part of the TCOPC value because these values are included in the total 1,2-DCE value. "J" values are not included in the TCOPC value.
[d]Ferrous Iron > Total Iron
ND = Not detected.
J = Estimated value, result is between the reporting limit and the method detection limit.

Table 2. Water-Level Data at the 4.5 Acre Site

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
PIN02			**West Pond**	
502D	4/4/2003	09:20	1.13	17.37
PIN05			**Trench Site**	
0500	4/4/2003	09:17	1.87	16.63
PIN20			**4.5 Acre Site**	
0502	4/4/2003	08:31	2.16	15.24
0503	4/4/2003	08:34	2.18	15.22
M001	4/4/2003	09:05	2.42	15.18
M003	4/4/2003	08:48	2.80	15.40
M005	4/4/2003	08:50	2.89	15.41
M007	4/4/2003	08:52	3.73	15.72
M011	4/4/2003	09:10	2.32	15.78
M012	4/4/2003	09:09	2.07	15.93
M015	4/4/2003	08:38	2.74	15.06
M019	4/4/2003	08:44	2.93	15.07
M023	4/4/2003	08:22	4.16	15.31
M024	4/4/2003	08:25	2.18	15.62
M025	4/4/2003	08:15	1.99	14.31
M028	4/4/2003	08:54	2.54	15.66
M035	4/4/2003	08:07	3.78	15.02
M036	4/4/2003	08:05	4.29	15.01
M049	4/4/2003	08:56	2.22	15.58
M053	4/4/2003	08:40	2.24	14.96
M054	4/4/2003	08:28	1.84	15.86
M18D	4/4/2003	08:42	2.69	15.01
M22D	4/4/2003	08:46	2.66	15.14
M38D	4/4/2003	07:55	4.30	14.20
M40D	4/4/2003	08:03	4.41	14.99
M40S	4/4/2003	08:01	4.33	14.87
M41D	4/4/2003	07:58	4.26	14.84
MWL1	4/4/2003	09:04	3.06	15.18
MWL2	4/4/2003	09:02	2.53	15.24
MWL3	4/4/2003	09:01	2.38	15.32
MWL4	4/4/2003	08:59	2.21	15.53
MWL5	4/4/2003	08:58	2.92	15.65
MWL6	4/4/2003	09:07	2.58	15.87
TE01	4/4/2003	09:14	2.05	16.05

Table 3. Field Measurements of Samples Collected at the 4.5 Acre Site

Location[a]	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[b]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Field Ferrous Iron (mg/L)	Field Total Iron (mg/L)	Oxidized Iron as Percent of Total Iron
PIN05		**Trench Site**								
0500	2.5-12.5	22.33	757	6.82	6.69	-23	0.51	--	--	--
PIN20		**4.5 Acre Site**								
0502	21.2-31.2	24.8	864	41.6	6.76	-71	0.46	--	--	--
0503	13.2-23.2	24.31	711	18.7	6.7	-63	0.54	--	--	--
DP01	18-22	23.47	1,079	554	6.84	-89	0.27	0.93	1.12	17
	22-26	24.03	662	--	6.85	-79	0.26	0.49	0.66	26
DP02	18-22	23.21	2,418	420	6.52	-99	0.19	2.7	3.23	16
	26-30	23.2	1,470	>1,000	6.44	-51	0.66	1.82	1.98	8
DP03	18-22	22.18	1,408	398	6.76	-57	0.35	1.22	1.41	13
	23-27	23.01	806	774	6.84	-73	0.24	0.47	0.62	24
DP04	23-27	22.95	887	>1,000	6.78	-80	0.23	0.72	0.76	5
DP05	23-27	24.3	697	923	6.74	-91	0.2	0.6	0.79	24
DP06	18-22	24.29	1,336	441	6.61	-75	0.32	1.09	1.13	4
	23-27	24.7	862	416	6.64	-75	0.28	0.6	0.75	20
DP07	18-22	23.92	2,345	620	6.48	-53	0.26	2.2	2.25	2
	24-28	24.4	975	766	6.65	-84	0.14	0.67	0.82	18
DP08	18-22	23.3	1,598	661	6.58	-100	0.16	2.33	2.65	12
	24-28	23.75	861	955	6.71	-78	0.16	0.51	0.65	22
DP09	26-30	24.07	1,059	411	6.83	-62	0.4	0.52	0.57	9
DP10	24-28	24.2	863	560	6.69	-64	0.24	0.36	0.46	22
DP11	18-22	22.77	1,309	602	6.82	-89	1	1.14	1.26	10
	26-30	23.65	924	451	6.79	-61	1.17	0.37	0.44	16
DP12	18-22	22.15	1,732	301	6.61	-70	1.11	1.43	0.99	0[c]
	25-29	22.65	945	>1,000	6.62	-54	1.27	0.37	0.39	5
DP13	18-22	23.67	1,856	552	6.57	-87	0.22	2.46	2.67	8
	26-30	24.16	911	417	6.65	-70	0.18	0.35	0.44	20

Table 3 (continued). Field Measurements of Samples Collected at the 4.5 Acre Site

Location[a]	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[b]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Field Ferrous Iron (mg/L)	Field Total Iron (mg/L)	Oxidized Iron as Percent of Total Iron
DP14	18-22	24.23	1,374	682	6.44	-50	0.76	0.99	1.21	18
	23-27	24.58	885	>1,000	6.49	-50	0.53	0.42	0.52	19
DP15	18-22	24.12	743	568	5.96	-21	0.85	0.29	0.62	53
	22-26	24.42	922	>1,000	6.47	-52	0.61	0.41	0.61	33
DP16	23-27	24.3	868	668	5.65	-12	0.73	0.38	0.49	22
DP17	18-22	24.31	981	525	5.79	-37	1.13	0.42	0.81	48
	23-27	24.4	933	704	5.19	5.6	0.62	0.35	0.68	49
DP18	18-22	23.96	1,211	621	5.54	-3.4	0.86	0.54	0.63	14
	23-27	24.41	1,976	>1,000	5.82	-31	0.64	0.78	0.9	13
DP19	24-28	24.11	994	738	5.38	-9.7	0.78	0.51	0.58	12
DP20	18-22	23.16	1,115	447	6.15	-31	1.17	0.36	0.51	29
	23-27	24.1	2,177	881	5.83	-54	0.9	1.8	1.79	0[c]
DP21	18-22	23.66	2,003	445	5.68	-30	1.06	1.96	2.02	3
	23-27	24.18	1,169	696	5.82	-53	0.63	0.87	1	13
DP22	23-27	24.37	914	523	6.19	-64	0.68	0.6	0.8	25
DP23	25-29	23.15	1,111	>1,000	5.38	-8.7	0.99	0.53	0.78	32
DP24	18-22	23.87	1,532	777	6.28	-40	0.98	0.88	1	12
	23-27	23.89	1,830	>1,000	6.4	-78	0.4	1.29	1.61	20
DP25	18-22	24.21	1,905	713	6.04	-49	0.7	1.21	1.7	29
	24-28	24.41	820	730	6.34	-72	0.4	0.21	0.7	70
DP26	24-28	24.74	681	770	6.13	-75	0.53	0.28	0.46	39
DP27	23-27	24.38	649	>1,000	6.84	-84	0.81	0.29	0.4	28
DP28	18-22	23.71	905	791	6.21	-70	0.65	0.86	0.97	11
	24-28	24.13	943	759	6.53	-89	0.45	0.74	0.92	20
DP29	18-22	23.6	769	609	6.45	-72.3	0.61	0.18	0.52	65
	24-28	24.21	808	>1,000	6.66	-91	0.42	0.3	0.55	45
DP30	18-22	23.75	774	486	6.95	-94	0.98	0.52	0.59	12
	23-27	24.1	778	991	6.87	-93.5	0.53	0.2	0.32	38

Table 3 (continued). Field Measurements of Samples Collected at the 4.5 Acre Site

Location[a]	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[b]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Field Ferrous Iron (mg/L)	Field Total Iron (mg/L)	Oxidized Iron as Percent of Total Iron
DP31	18-22	23.72	848	665	6.1	-50	1.72	0.77	0.85	9
	22-26	23.9	1,433	297	5.97	-48	1.58	0.56	0.69	19
DP32	18-22	23.37	658	755	6.91	-92	1.67	0.8	1.02	22
	22-26	23.54	601	404	6.71	-59	1.78	0.65	0.79	18
DP33	18-22	23.45	757	>1,000	6.61	-87	2.06	1.08	1.41	23
	22-26	23.81	658	>1,000	6.28	-63	1.75	0.83	0.92	10
DP34	18-22	23.44	498	709	6.64	-88	1.61	0.64	0.86	26
	22-26	23.9	486	867	5.89	-62	1.84	0.32	0.36	11
DP35	18-22	23.1	679	>1,000	7.18	-11.6	1.99	0.91	1.04	13
	22-26	23.99	448	353	6.62	-61	2.13	0.47	0.57	18
M001	20-25	24.21	1,037	2.7	6.67	-85	0.35	--	--	--
M003	9-14	23.2	923	1.71	6.7	49	0.83	--	--	--
M005	25.8-30.7	25.06	1,020	0.85	6.75	-28	0.43	--	--	--
M007	25.3-30.3	24.36	798	1.88	6.53	-29	0.58	--	--	--
M011	23.7-28.7	24.23	981	2.77	6.54	-77	--	--	--	--
M012	8.6-13.6	22.7	997	17.8	6.63	-7	--	--	--	--
M015	20.8-25.8	24.19	743	1.65	6.61	-101	0.21	--	--	--
M019	22-27	26.08	1,003	7.95	6.63	-55	--	--	--	--
M023	19.8-24.8	24.84	843	9.68	6.66	-85	--	--	--	--
M024	8.7-13.7	23.58	765	17.2	6.68	-34	--	--	--	--
M025	8.6-13.6	22.12	2,533	90.6	6.53	18	1.46	--	--	--
M028	22-27	24.12	710	2.33	6.75	-78	0.43	--	--	--
M035	9-14	22.67	2,035	12	6.71	-118	0.29	--	--	--
M036	25-30	23.81	721	1.4	6.71	-75.1	0.36	--	--	--
M049	20-30	23.44	946	9.02	6.72	-88	0.36	--	--	--
M053	20-30	25.45	880	45.5	6.81	-88	--	--	--	--

Table 3 (continued). Field Measurements of Samples Collected at the 4.5 Acre Site

Location[a]	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[b]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Field Ferrous Iron (mg/L)	Field Total Iron (mg/L)	Oxidized Iron as Percent of Total Iron
M054	20-30	24.76	1,165	53.3	6.67	-93.5	--	--	--	--
M18D	20-30	23.94	1,019	2.94	6.78	-81	0.29	--	--	--
M22D	20-30	24.06	808	2.95	6.83	-73	0.39	--	--	--
M38D	20-30	22.86	734	2	7.17	-110	0.47	--	--	--
M40D	18-28	23.67	704	23.3	6.79	-88.6	0.38	--	--	--
M40S	4-14	22.65	222	7.42	6.33	-23.7	0.62	--	--	--
M41D	16-26	23.18	799	3.46	6.7	-90	--	--	--	--
MWL1	21-26	24	1,638	>1,000	6.6	-86	0.31	--	--	--
MWL2	21-26	23.83	1,251	>1,000	5.98	-4	0.52	--	--	--
MWL3	21-26	24.04	2,274	>999	6.42	-99.7	0.34	--	--	--
MWL4	20.8-25.8	23.57	874	>1,000	6.45	-53	0.38	--	--	--
MWL5	20.8-25.8	24.11	809	>1,000	6.67	-81	0.53	--	--	--
MWL6	21.5-26.5	24.63	842	>1,000	6.5	-76	0.33	--	--	--

[a] Locations starting with "DP" are Direct Push locations, all others are monitoring wells
[b] Temperature corrected to 25°C
[c] Ferrous Iron > Total Iron
-- Not Measured

Table 4. COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
PIN05			**Trench Site**						
0500	2.5-12.5	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		4/15/2003	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
PIN20			**4.5 Acre Site**						
0502	21.2-31.2	4/9/2002	<1	1.4	<1	1.4	5.5	<1	6.9
		10/8/2002	<1	7.4	<1	7.4	28	<1	35.4
		1/7/2003	<1	23	0.32J	23	66	<1	89
		4/7/2003	0.27J	41	0.29J	41	110	0.18J	151
0503	13.2-23.2	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
DP01	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/8/2002	<1	<1	<1	ND	0.99J	<1	ND
		10/7/2002	<1	0.2J	<1	0.2J	1.1	<1	1.1
		1/9/2003	<1	<1	<1	ND	1.5	0.22J	1.5
		4/1/2003	<1	0.25J	<1	0.25J	<1	<1	ND
	23-27	4/10/2002	<1	<1	<1	ND	11	15	26
	22-26	7/8/2002	<1	<1	<1	ND	2.3	7.3	9.6
		10/7/2002	<1	0.19J	<1	0.19J	2.5	6.3	8.8
	23-27	1/9/2003	<1	<1	<1	ND	2.6	6	8.6
	22-26	4/1/2003	<1	0.5J	<1	0.5J	4.7	0.2J	4.7
DP02	18-22	4/11/2002	<1	1.6	<1	1.6	9.4	<1	11
		7/8/2002	<1	4.4	<1	4.4	18	0.46J	22.4
		10/8/2002	<1	74	<1	74	53	0.43J	127
		1/9/2003	<10	350	<10	350	440	<10	790
		4/1/2003	<5	450	0.89J	450	300	<5	750
	26-30	4/11/2002	<100	4,400	160	4,560	4,100	<100	8,660
		7/8/2002	190	5,500	280	5,780	4,800	<100	10,770
		10/8/2002	380	3,600	140	3,740	3,000	<1	7,120
	23-27	1/9/2003	<1	1.3	<1	1.3	49	1.6	51.9
	26-30	4/1/2003	78	1,600	64	1,664	630	<500	2,372
DP03	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/8/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/9/2003	<1	<1	<1	ND	<1	<1	ND
		4/1/2003	<1	<1	<1	ND	<1	0.18J	ND
	24-28	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/8/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/9/2003	<1	<1	<1	ND	<1	<1	ND
	23-27	4/1/2003	<1	<1	<1	ND	<1	<1	ND

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP04	25-29	4/10/2002	<1	<1	<1	ND	<1	<1	ND
	24-28	7/9/2002	<1	0.33J	<1	0.33J	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
	25-29	1/9/2003	<1	<1	<1	ND	<1	<1	ND
	23-27	4/1/2003	<1	<1	<1	ND	<1	<1	ND
DP05	23-27	4/10/2002	<1	<1	<1	ND	<1	16	16
		7/9/2002	<1	<1	<1	ND	<1	11	11
		10/7/2002	<1	<1	<1	ND	0.58J	14	14
		1/9/2003	<1	<1	<1	ND	<1	9.1	9.1
		4/1/2003	<1	0.22J	<1	0.22J	0.63J	7.9	7.9
DP06	18-22	4/11/2002	<1	<1	<1	ND	5.4	14	19.4
		7/10/2002	<1	<1	<1	ND	10	11	21
		10/7/2002	<1	<1	<1	ND	6.4	17	23.4
		1/9/2003	<1	<1	<1	ND	7.3	10	17.3
		4/1/2003	<1	0.45J	<1	0.45J	3.7	5.1	8.8
	23-27	4/11/2002	<1	<1	<1	ND	4	13	17
	24-28	7/10/2002	<1	4.6	<1	4.6	46	5.3	55.9
		10/7/2002	<1	1.5	<1	1.5	40	14	55.5
	23-27	1/9/2003	<1	1.2	<1	1.2	30	11	42.2
		4/1/2003	<1	0.53J	<1	0.53J	8.2	7	15.2
DP07	18-22	4/11/2002	83	2,800	74	2,874	2,400	<50	5,357
		7/8/2002	91	2,100	54	2,154	1,700	<50	3,945
		10/8/2002	<50	1,600	120	1,720	1,700	<50	3,420
		1/9/2003	<50	480	31J	480	870	<50	1,350
		4/1/2003	4J	800	45	845	890	<25	1,735
	26-30	4/11/2002	<100	210	<100	210	4,500	<100	4,710
	25-29	7/8/2002	<25	88	<25	88	1,100	<25	1,188
	26-30	10/8/2002	<25	19J	<25	19J	1,300	<25	1,300
	23-27	1/9/2003	17	33	8.1	41.1	70	<1	128.1
	24-28	4/1/2003	3.9J	14	1.4J	14	100	<5	114
DP08	18-22	4/11/2002	1.5	25	0.5J	25	5.5	0.18J	32
		7/8/2002	0.73J	4.8	<1	4.8	6.1	<1	10.9
		10/8/2002	<1	10	<1	10	7.8	<1	17.8
		1/9/2003	2.3	5	<1	5	5.6	<1	12.9
		4/1/2003	2.1	15	0.57J	15	9.1	<1	26.2
	25-29	4/11/2002	42	46	1.9	47.9	13	<1	102.9
		7/8/2002	0.59J	1.4	<1	1.4	<1	<1	1.4
	24-28	10/8/2002	<2.5	130	9.2	139.2	34	<2.5	173.2
	23.5-27.5	1/9/2003	0.57J	<1	<1	ND	<1	<1	ND
	24-28	4/1/2003	8	28	1.6	29.6	3.4	<1	41

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP09	26-30	4/10/2002	<1	<1	<1	ND	<1	0.34J	ND
	24-28	7/9/2002	<1	<1	<1	ND	<1	1.2	1.2
		10/7/2002	<1	1.6	<1	1.6	2.7	<1	4.3
	26-30	1/9/2003	<1	<1	<1	ND	0.79J	0.31J	ND
		4/2/2003	<1	<1	<1	ND	0.6J	0.13J	ND
DP10	26-30	4/10/2002	<1	<1	<1	ND	<1	<1	ND
	25-29	7/9/2002	<1	<1	<1	ND	<1	0.19J	ND
	24-28	10/8/2002	<1	<1	<1	ND	<1	<1	ND
	25-29	1/9/2003	<1	<1	<1	ND	<1	<1	ND
	24-28	4/1/2003	<1	<1	<1	ND	<1	<1	ND
DP11	18-22	4/9/2002	<1	<1	<1	ND	<1	11	11
		7/9/2002	<1	<1	<1	ND	1.8	7.7	9.5
		10/7/2002	<1	0.36J	<1	0.36J	2	7.1	9.1
		1/9/2003	<1	<1	<1	ND	1.1	6.7	7.8
		4/2/2003	<1	0.24J	<1	0.24J	0.71J	8.3	8.3
	26-30	4/9/2002	<1	5.7	<1	5.7	9.6	0.52J	15.3
	24-28	7/9/2002	<1	<1	<1	ND	<1	2.2	2.2
		10/7/2002	<1	0.23J	<1	0.23J	0.76J	2.6	2.6
	25-29	1/9/2003	<1	1.4	<1	1.4	2	2.3	5.7
	26-30	4/2/2003	<1	82	0.34J	82	110	0.56J	192
DP12	18-22	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	8.7	<1	8.7
		10/7/2002	0.2J	0.14J	<1	0.14J	3.3	<1	3.3
		1/9/2003	<1	<1	<1	ND	25	0.94J	25
		4/2/2003	0.33J	0.18J	<1	0.18J	3.8	0.41J	3.8
	26-30	4/11/2002	<250	16,000	81J	16,000	27,000	<250	43,000
		7/9/2002	67,000	250,000	770J	250,000	23,000	<2,500	340,000
	25-29	10/7/2002	<250	19,000	<250	19,000	5,000	<250	24,000
		1/9/2003	<5,000	280,000	2,700J	280,000	16,000	<5,000	296,000
		4/2/2003	<500	46,000	<500	46,000	30,000	<500	76,000
DP13	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/9/2003	<1	<1	<1	ND	<1	<1	ND
		4/1/2003	<1	<1	<1	ND	<1	<1	ND
	26-30	4/10/2002	<1	<1	<1	ND	0.37J	<1	ND
	25-29	7/9/2002	<1	<1	<1	ND	<1	<1	ND
	24-28	10/8/2002	<1	<1	<1	ND	<1	<1	ND
	25-29	1/9/2003	<1	<1	<1	ND	<1	<1	ND
	26-30	4/1/2003	<1	<1	<1	ND	<1	<1	ND

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP14	18-22	4/8/2002	<1	0.78J	<1	0.78J	9.9	0.82J	9.9
		7/11/2002	<1	0.36J	<1	0.36J	12	0.6J	12
		10/10/2002	<1	0.64J	<1	0.64J	9.1	0.71J	9.1
		1/7/2003	<1	<1	<1	ND	3	0.57J	3
		4/3/2003	<1	0.66J	<1	0.66J	7.3	1	8.3
	24-28	4/8/2002	<1	<1	<1	ND	1.5	0.17J	1.5
	26-30	7/11/2002	<1	<1	<1	ND	0.55J	<1	ND
	22-26	10/10/2002	<1	<1	<1	ND	8.6	0.24J	8.6
	23-27	1/7/2003	<1	<1	<1	ND	4.4	0.11J	4.4
		4/3/2003	<1	<1	<1	ND	7.3	<1	7.3
DP15	18-22	4/8/2002	<1	24	0.58J	24	12	0.3J	36
		7/11/2002	<1	25	0.76J	25	11	0.3J	36
		10/10/2002	<1	21	1	22	10	0.2J	32
		1/8/2003	<1	15	0.64J	15	9.6	0.15J	24.6
		4/3/2003	<1	19	0.37J	19	17	0.28J	36
	22-26	4/8/2002	<1	3.5	<1	3.5	7.4	<1	10.9
		7/11/2002	<1	4.7	<1	4.7	5.6	<1	10.3
	23-27	10/10/2002	<1	7.6	<1	7.6	9.3	<1	16.9
	22-26	1/8/2003	<1	6.6	0.14J	6.6	12	<1	18.6
		4/3/2003	<1	4.6	<1	4.6	33	<1	37.6
DP16	22-26	4/8/2002	<1	0.37J	<1	0.37J	<1	<1	ND
	23-27	7/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/10/2002	<1	0.96J	<1	0.96J	<1	<1	ND
	22-26	1/7/2003	<1	0.6J	<1	0.6J	<1	<1	ND
	23-27	4/3/2003	<1	0.53J	<1	0.53J	<1	<1	ND
DP17	18-22	4/8/2002	<1	0.35J	<1	0.35J	3.1	0.42J	3.1
		7/11/2002	<1	0.21J	<1	0.21J	2.6	0.7J	2.6
		10/10/2002	<1	0.5J	<1	0.5J	2.4	0.34J	2.4
		1/7/2003	<1	<1	<1	ND	<1	0.31J	ND
		4/3/2003	<1	<1	<1	ND	0.23J	0.41J	ND
	22-26	4/8/2002	<1	<1	<1	ND	3.4	0.32J	3.4
		7/11/2002	<1	<1	<1	ND	4	0.57J	4
		10/10/2002	<1	0.15J	<1	0.15J	2	0.22J	2
	23-27	1/7/2003	<1	<1	<1	ND	2.4	0.31J	2.4
		4/3/2003	<1	<1	<1	ND	6.1	0.43J	6.1

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP18	18-22	4/8/2002	<1	26	0.27J	26	3	<1	29
		7/11/2002	<1	16	0.24J	16	0.55J	0.13J	16
		10/10/2002	<1	17	0.37J	17	2.7	<1	19.7
		1/7/2003	0.17J	25	0.69J	25	3.4	<1	28.4
		4/3/2003	<1	22	0.49J	22	3.3	<1	25.3
	24-28	4/8/2002	<1	7.4	<1	7.4	4.3	<1	11.7
		7/11/2002	<1	3.4	<1	3.4	4.1	<1	7.5
	23-27	10/10/2002	<1	5.2	<1	5.2	3.7	<1	8.9
	22-26	1/7/2003	<1	4.6	<1	4.6	7.4	<1	12
	23-27	4/3/2003	<1	1.5	<1	1.5	5.7	<1	7.2
DP19	25-29	4/8/2002	<1	<1	<1	ND	<1	<1	ND
	26-30	7/11/2002	<1	<1	<1	ND	<1	<1	ND
	23-27	10/10/2002	<1	<1	<1	ND	0.36J	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	<1	ND
	24-28	4/3/2003	<1	<1	<1	ND	1.2	<1	1.2
DP20	18-22	4/8/2002	<1	<1	0.24J	0.24J	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	2.4	<1	2.4
		10/10/2002	<1	<1	0.37J	0.37J	3.4	<1	3.4
		1/7/2003	<1	<1	0.26J	0.26J	5.3	<1	5.3
		4/3/2003	<1	<1	0.43J	0.43J	3.3	<1	3.3
	25-29	4/8/2002	<1	<1	1.8	1.8	90	<1	91.8
	26-30	7/11/2002	<1	<1	1.2	1.2	64	<1	65.2
	24-28	10/10/2002	0.2J	0.16J	4.7	4.7	76	<1	80.7
		1/7/2003	<1	<1	0.37J	0.37J	57	<1	57
	23-27	4/3/2003	<1	<1	3.6	3.6	80	<1	83.6
DP21	18-22	4/9/2002	<1	0.34J	13	13	6.2	<1	19.2
		7/11/2002	<1	0.37J	7.2	7.2	14	0.19J	21.2
		10/10/2002	0.32J	0.78J	7.4	7.4	9.4	<1	16.8
		1/7/2003	0.14J	0.52J	8.8	8.8	11	<1	19.8
		4/3/2003	0.34J	1.1	14	15.1	14	<1	29.1
	24-28	4/9/2002	<1	0.38J	0.44J	0.82J	31	0.49J	31
	22-26	7/11/2002	<1	<1	0.2J	0.2J	29	<1	29
	23-27	10/10/2002	0.27J	0.65J	0.98J	1.63J	27	0.27J	27
		1/7/2003	<1	0.41J	0.68J	1.09J	48	<1	48
		4/3/2003	0.37J	0.7J	1.4	1.4	40	0.38J	41.4
DP22	24-28	4/9/2002	0.23J	0.81J	1.2J	2.01J	87	1.3J	87
		7/10/2002	<2.5	<2.5	2.4J	2.4J	270	1.7J	270
	22-26	10/10/2002	2.5	2.9	1.6J	2.9	110	1.2J	115.4
	26-30	1/7/2003	0.11J	0.2J	2.3	2.3	36	<1	38.3
	23-27	4/2/2003	1.8	2.7	2.1	4.8	120	1.2	127.8

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP23	25-29	4/9/2002	<1	<1	<1	ND	<1	0.22J	ND
	24-28	7/10/2002	<1	<1	<1	ND	<1	0.22J	ND
		10/10/2002	<1	0.15J	<1	0.15J	0.84J	<1	ND
	25-29	4/3/2003	<1	<1	<1	ND	0.56J	<1	ND
DP24	18-22	4/9/2002	<1	0.23J	<1	0.23J	<1	<1	ND
		7/10/2002	<1	0.41J	<1	0.41J	2.3	<1	2.3
		10/10/2002	<1	0.3J	<1	0.3J	1.4	0.25J	1.4
		1/6/2003	<1	0.21J	<1	0.21J	0.31J	<1	ND
		4/2/2003	<1	0.24J	<1	0.24J	0.69J	<1	ND
	24-28	4/9/2002	<1	<1	<1	ND	<1	0.35J	ND
	22-26	7/10/2002	<1	<1	<1	ND	<1	0.48J	ND
		10/10/2002	<1	<1	<1	ND	3	0.58J	3
		1/6/2003	<1	<1	<1	ND	2.6	0.66J	2.6
	23-27	4/2/2003	<1	<1	<1	ND	2.8	0.44J	2.8
DP25	18-22	4/9/2002	<1	0.88J	1.6	1.6	20	<1	21.6
		7/10/2002	0.87J	0.86J	1.3	1.3	75	<1	76.3
		10/10/2002	<1	0.88J	1.7	1.7	55	<1	56.7
		1/7/2003	0.88J	0.95J	3.4	3.4	80	<1	83.4
		4/2/2003	0.23J	1	2.7	3.7	110	<1	113.7
	24-28	4/9/2002	16	11	21	32	270	<2.5	318
		7/10/2002	3.6	5.8	24	29.8	76	<1	109.4
	23-27	10/10/2002	4.1	4.5	7.7	12.2	68	<1	84.3
	22.5-26.5	1/7/2003	450	250	230	480	270	<5	1,200
	24-28	4/2/2003	4.4	5.4	10	15.4	140	<2.5	159.8
DP26	26-30	4/9/2002	12,000	4,000	1,200	5,200	<100	<100	17,200
	24-28	7/10/2002	380	140	68	208	100	<5	688
	23-27	10/10/2002	80	48	29	77	190	<2.5	347
	26-30	1/7/2003	3,100	5,600	910	6,510	330	<100	9,940
	24-28	4/2/2003	13	31	29	60	200	<2.5	273
DP27	25-29	4/9/2002	0.11J	0.13J	<1	0.13J	<1	5.5	5.5
	26-30	7/10/2002	<1	<1	<1	ND	0.43J	<1	ND
	22-26	10/10/2002	0.19J	0.21J	<1	0.21J	1.9	<1	1.9
		1/6/2003	0.15J	0.32J	<1	0.32J	1.1	0.26J	1.1
	23-27	4/2/2003	0.12J	0.51J	<1	0.51J	<1	0.14J	ND

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP28	18-22	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/10/2002	<1	<1	<1	ND	<1	<1	ND
		1/6/2003	<1	0.1J	<1	0.1J	<1	<1	ND
		4/2/2003	<1	71	0.2J	71	26	<1	97
	24.5-28.5	4/9/2002	<1	<1	<1	ND	<1	<1	ND
	23-27	7/10/2002	<1	<1	<1	ND	<1	<1	ND
	26-30	10/10/2002	0.14J	0.16J	<1	0.16J	0.82J	<1	ND
	22-26	1/6/2003	<1	<1	<1	ND	1.4	<1	1.4
	24-28	4/2/2003	<1	<1	<1	ND	0.63J	<1	ND
DP29	18-22	4/9/2002	<1	<1	<1	ND	<1	0.28J	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/10/2002	<1	<1	<1	ND	0.42J	0.36J	ND
		1/6/2003	<1	<1	<1	ND	<1	<1	ND
		4/2/2003	<1	<1	<1	ND	0.62J	<1	ND
	24-28	4/9/2002	<1	<1	<1	ND	<1	<1	ND
	25-29	7/10/2002	<1	<1	<1	ND	<1	<1	ND
	22-26	10/10/2002	<1	0.22J	<1	0.22J	1.3	0.27J	1.3
		1/6/2003	<1	<1	<1	ND	0.23J	<1	ND
	24-28	4/2/2003	<1	<1	<1	ND	0.88J	<1	ND
DP30	18-22	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/10/2002	<1	<1	<1	ND	<1	<1	ND
		1/6/2003	<1	<1	<1	ND	<1	<1	ND
		4/2/2003	<1	<1	<1	ND	<1	<1	ND
	26-30	4/9/2002	<1	<1	<1	ND	<1	<1	ND
	24-27	7/10/2002	<1	<1	<1	ND	<1	<1	ND
	23-27	10/10/2002	<1	<1	<1	ND	<1	<1	ND
	22-26	1/6/2003	<1	<1	<1	ND	<1	<1	ND
	23-27	4/2/2003	<1	<1	<1	ND	<1	<1	ND
DP31	18-22	4/10/2002	<1	<1	<1	ND	0.61J	<1	ND
		7/8/2002	<1	<1	<1	ND	0.86J	0.43J	ND
		10/8/2002		<1	<1	ND	0.72J	0.17J	ND
		1/8/2003	<1	<1	<1	ND	<1	0.13J	ND
		3/31/2003	<1	12	1	13	5.4	0.11J	18.4
	24-28	4/10/2002	2J	440	34	474	600	<10	1,074
	22-26	7/8/2002	<50	2,700	84	2,784	1,900	<50	4,684
		10/8/2002	<50	4,000	64	4,064	4,200	<50	8,264
		1/8/2003	<1	15	0.45J	15	26	0.1J	41
		3/31/2003	<10	400	15	415	190	<10	605

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
DP32	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	3.1	<1	3.1
		10/11/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		3/31/2003	<1	<1	<1	ND	<1	<1	ND
	23-27	4/10/2002	<5	80	<5	80	160	<5	240
	22-26	7/9/2002	<2.5	110	0.76J	110	220	<2.5	330
	23-27	10/11/2002	<1	13	0.27J	13	65	0.16J	78
	22-26	1/8/2003	<5	160	4.4J	160	230	0.71J	390
		3/31/2003	<5	190	2.5J	190	200	<5	390
DP33	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	<1	<1	ND
		10/11/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		3/31/2003	<1	<1	<1	ND	<1	<1	ND
	23-27	4/10/2002	<1	1.7	<1	1.7	<1	<1	1.7
		7/9/2002	<1	35	<1	35	44	<1	79
		10/11/2002	<1	31	0.28J	31	51	<1	82
		1/8/2003	<1	22	0.4J	22	49	<1	71
	22-26	3/31/2003	<1	32	0.44J	32	44	<1	76
DP34	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	<1	<1	ND
		10/11/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		3/31/2003	<1	<1	<1	ND	<1	<1	ND
	24-28	4/10/2002	<1	<1	<1	ND	<1	<1	ND
	22-26	7/9/2002	<1	<1	<1	ND	<1	<1	ND
	23-27	10/11/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
	22-26	3/31/2003	<1	<1	<1	ND	<1	<1	ND
DP35	18-22	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/9/2002	<1	<1	<1	ND	5.6	0.41J	5.6
		10/11/2002	<1	<1	<1	ND	0.85J	<1	ND
		1/8/2003	<1	<1	<1	ND	3.3	0.22J	3.3
		3/31/2003	<1	<1	<1	ND	0.9J	0.1J	ND
	23-27	4/10/2002	<1	1.6	<1	1.6	13	0.72J	14.6
	22-26	7/9/2002	<1	<1	<1	ND	<1	<1	ND
	23-27	10/11/2002	<1	2.5	<1	2.5	15	0.3J	17.5
	22-26	1/8/2003	<1	0.97J	<1	0.97J	17	0.36J	17
		3/31/2003	<1	1.6	<1	1.6	7.8	0.22J	9.4

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
M001	20-25	4/10/2002	<1	<1	<1	ND	2.1	<1	2.1
		7/10/2002	<1	<1	<1	ND	0.9J	<1	ND
		10/9/2002	<1	0.13J	<1	0.13J	2.2	<1	2.2
		1/8/2003	<1	0.55J	<1	0.55J	17	0.69J	17
		4/8/2003	<5	93	0.97J	93	230	<5	323
M003	9-14	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M005	25.8-30.7	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M007	25.3-30.3	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M011	23.7-28.7	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M012	8.6-13.6	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M015	20.8-25.8	4/11/2002	<1	<1	<1	ND	0.41J	<1	ND
		10/9/2002	<1	<1	<1	ND	1.4	<1	1.4
		1/7/2003	<1	<1	<1	ND	0.69J	<1	ND
		4/8/2003	<1	<1	<1	ND	1.1	<1	1.1
M019	22-27	4/10/2002	<1	<1	<1	ND	0.25J	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	0.29J	<1	ND
M023	19.8-24.8	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M024	8.7-13.7	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
M025	8.6-13.6	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	0.18J	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
M028	22-27	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M035	9-14	7/12/2002	<1	0.46J	<1	0.46J	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
M036	25-30	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
M049	20-30	4/9/2002	11	70	3.5	73.5	6.7	<1	91.2
		7/10/2002	5.9	90	5.4	95.4	9.8	<1	111.1
		10/9/2002	7	100	5.2	105.2	12	<2.5	124.2
		1/8/2003	3.6	62	5.6	67.6	6.9	<2.5	78.1
		4/8/2003	1.7J	54	4.6	58.6	16	<2.5	74.6
M053	20-30	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	1.7	<1	<1	ND	<1	<1	1.7
		1/7/2003	<1	<1	<1	ND	2	<1	2
		4/7/2003	<1	<1	<1	ND	3.3	<1	3.3
M054	20-30	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/10/2002	<1	<1	<1	ND	<1	<1	ND
		10/8/2002	<1	<1	<1	ND	<1	<1	ND
		1/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/7/2003	<1	<1	<1	ND	<1	<1	ND
M18D	20-30	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	0.21J	<1	0.21J	<1	<1	ND
		10/9/2002	<1	1.1	<1	1.1	1.7	<1	2.8
		1/7/2003	<1	1	<1	1	2.4	<1	3.4
		4/8/2003	<1	1.6	<1	1.6	4.9	<1	6.5
M22D	20-30	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	0.41J	<1	ND
		1/7/2003	<1	<1	<1	ND	1.8	<1	1.8
		4/7/2003	<1	<1	<1	ND	8	<1	8
M38D	20-30	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND

Table 4 (continued). COPC Concentrations from Wells and DPT Locations at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Benzene	TCOPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
M40D	18-28	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
M40S	4-14	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	0.6J	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
M41D	16-26	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		10/9/2002	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
MWL1	21-26	1/8/2003	0.26J	1.5	<1	1.5	4.4	7	12.9
		4/8/2003	<1	0.3J	<1	0.3J	6.1	5.3	11.4
MWL2	21-26	1/8/2003	0.89J	4.6	0.57J	4.6	18	1.6	24.2
		4/8/2003	<1	0.9J	0.21J	1.11J	25	1.4	26.4
MWL3	21-26	1/8/2003	2.5	11	0.4J	11	14	<1	27.5
		4/8/2003	<1	0.27J	<1	0.27J	3.8	0.15J	3.8
MWL4	20.8-25.8	1/8/2003	49J	5,400	<100	5,400	570	<100	5,970
		4/8/2003	240	8,200	140	8,340	1,700	<100	10,280
MWL5	20.8-25.8	1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	1.3	<1	1.3	<1	0.19J	1.3
MWL6	21.5-26.5	1/8/2003	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	0.25J	<1	0.25J	<1	0.2J	ND

[a]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE.
[b]TCOPC is the sum of the individual COPC concentrations. The cis-1,2-DCE and trans-1,2-DCE values are not part of the TCOPC value because these values are included in the Total 1,2-DCE value. "J" values are not included in the TCOPC value.
ND = Not detected.
J = Estimated value, result is between the reporting limit and the method detection limit.
B = Analyte also found in method blank.
-- = No Data.

Table 5. Arsenic and Lead in Samples Collected at the 4.5 Acre Site
(reported in milligrams per liter)

Location	Screen Depth (ft bls)	Date Sampled	Arsenic	Lead
FDEP MCL			**0.05**	**0.015**
PIN20			**4.5 Acre Site**	
0502	21.2-31.2	4/7/2003	0.014	0.0051
0503	13.2-23.2	4/7/2003	0.016	0.0063
M001	20-25	4/8/2003	<0.01	<0.005
M003	9-14	4/7/2003	0.0039J	<0.005
M005	25.8-30.7	4/7/2003	0.005J	0.0031J
M007	25.3-30.3	4/7/2003	<0.01	0.0041J
M011	23.7-28.7	4/7/2003	<0.01	<0.005
M012	8.6-13.6	4/7/2003	0.0053J	<0.005
M015	20.8-25.8	4/8/2003	<0.01	0.0041J
M019	22-27	4/7/2003	0.0044J	<0.005
M023	19.8-24.8	4/7/2003	0.005J	<0.005
M024	8.7-13.7	4/7/2003	0.004J	<0.005
M025	8.6-13.6	4/8/2003	0.009J	<0.005
M028	22-27	4/7/2003	0.0045J	0.0033J
M035	9-14	4/8/2003	0.0059J	<0.005
M036	25-30	4/8/2003	0.0042J	0.0025J
M049	20-30	4/8/2003	<0.01	0.0044J
M053	20-30	4/7/2003	0.004J	<0.005
M054	20-30	4/7/2003	0.0042J	<0.005
M18D	20-30	4/8/2003	<0.01	<0.005
M22D	20-30	4/7/2003	<0.01	0.0028J
M38D	20-30	4/8/2003	<0.01	<0.005
M40D	18-28	4/8/2003	<0.01	0.0042J
M40S	4-14	4/8/2003	0.0057J	<0.005
M41D	16-26	4/9/2003	<0.01	<0.005
MWL1	21-26	4/8/2003	0.0043J	0.0038J
MWL2	21-26	4/8/2003	0.015	0.015
MWL3	21-26	4/8/2003	0.017	0.016
MWL4	20.8-25.8	4/8/2003	0.015	0.021
MWL5	20.8-25.8	4/8/2003	0.0096J	0.0093
MWL6	21.5-26.5	4/8/2003	0.029	0.038

J Estimated value, result is between the reporting limit and the method detection limit.

Table 6. RPD for Duplicate Samples
4.5 Acre Site

Sample ID	Duplicate ID	Case Number	Constituent	S[a]	D[b]	RPD Value	5 times DL[c]	Fail[d]
PIN20–DP02–N002	PIN20–0552	B351164	1,1-Dichloroethene	25	63	86.4	250	
			cis-1,2-Dichloroethene	1,600	19,000	168.9	250	Fail
			trans-1,2-Dichloroethene	64	970	175.2	250	
			Trichloroethene	78	1,000	171.1	250	
			Vinyl chloride	630	11,000	178.3	250	Fail
PIN20–DP03–N002	PIN20–0553	B351164	Methylene chloride	0.39	0.56	35.8	25	
PIN20–DP13–N002	PIN20–0554	B351203	Non-Detect					
PIN20–DP55–N002	PIN20–0555	B351241	cis-1,2-Dichloroethene	4.6	5	8.3	5	
			Vinyl chloride	6.2	7	12.1	5	
PIN20–M011	PIN20–0550	B351279	Non-Detect					
PIN20–MWL3	PIN20–0551	B351360	Arsenic	0.017	0.021	21.1	0.05	
			Benzene	0.15	0.16	6.5	5	
			cis-1,2-Dichloroethene	0.27	0.4	38.8	5	
			Lead	0.016	0.017	6.1	0.025	
			Vinyl chloride	3.8	4.2	10.0	5	

[a]S = Original sample (N001), VOC concentration in μg/L.
[b]D = Duplicate sample (N002), VOC concentration in μg/L.
[c]DL = Detection limit.
[d]Fail is an RPD greater than ±30% and an original or duplicate sample more than 5 times the detection limit.

Appendix A

Laboratory Reports—April 2003 Quarterly Results